REPORT OF THE

COMMISSION OF INQUIRY

ON AVIATION SAFETY

VOLUME 1

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COMMISSION OF INQUIRY

ON AVIATION SAFETY

Commissioner
The Honourable Mr. Justice Charles L. Dubin

May 1981

VOLUME 1

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PREFACE

TO: The Honourable Jean-Luc Pepin
Minister of Transport

Dear Mr. Minister:

By Order-in-Council dated the 3rd of August, 1979 I was appointed a Commissioner under Part II of the Inquiries Act. I set forth hereunder the Order-in-Council pursuant to which my appointment was made:

> "**WHEREAS** concern has been expressed about
>
> (a) the adequacy of federal law, regulations, and rules and of practices and procedures governing aviation safety in Canada, particularly in relation to (i) small aircraft (ii) remote areas, and (iii) uncontrolled airports;
>
> (b) the sufficiency of enforcement of existing aviation safety legislation and standards, including the training, qualification and numbers of federal inspectors;
>
> (c) the airworthiness and maintenance of aircraft including departmental aircraft; and
>
> (d) the adequacy of aviation incident reporting and investigation and aviation accident investigation.
>
> **AND WHEREAS** the Committee is of the opinion that it would be in the public interest for the said concerns to be investigated;
>
> The Committee of the Privy Council, on the recommendation of the Minister of Transport, therefore, advise that, pursuant to Part II of the Inquiries Act, Your Excellency in Council may be pleased to authorize the Minister of Transport to appoint the Honourable Mr. Justice Charles L. Dubin of Toronto, Ontario, a Commissioner under Part II of the Inquiries Act, to investigate and report upon the existing state and management of that part of the business of the Air Administration of the Department of Transport, subject to clauses (a) and (b) hereof, pertaining to:
>
> 1. the inspection and certification of aircraft;
>
> 2. the conditions under which aircraft may be used or operated;

3. the formulation and enforcement of laws, regulations and rules necessary for the safe and proper navigation of aircraft;

4. the investigation of accidents and reporting and investigation of incidents involving aircraft, including the taking of statements and other materials by investigators for the purpose of any such investigations and the retention of the statements and whether such statements, other materials or voice recordings relating to an accident or an incident should be privileged, and if so, to what extent;

5. the activities of any person who is or was in the management or service of the Department of Transport insofar as these activities relate to his official duties in respect of any of the matters referred to in sections 1 to 4 inclusive; and

6. any matters incidental or relating to any of the matters referred to in sections 1 to 5,

so as to advise the Minister of Transport of the safety of the civil air transportation system and on whether the Aeronautics Act and regulations made pursuant thereto should, in respect of the matters referred in sections 1 to 6 be amended to improve safety and, if so, in what manner, and if requested by the Minister of Transport to prepare an interim report or reports to

(a) advise on recommendations for change in the particular area or areas of aviation incident reporting and investigation and aviation accident investigation specified by the Minister in his request, or

(b) comment on any legislation affecting the area or areas of aviation incident reporting and investigation and aviation accident investigation enacted by Parliament during the term of the appointment authorized herein.

The Committee of the Privy Council further advise that a Commission be issued to the said Commissioner providing

(i) that the Commissioner may adopt such procedures and methods as he may from time to time deem expedient for the proper conduct of the inquiry, may sit at such time and at such places as he may decide from time to time and shall have complete access to personnel and information available in the Department of Transport and that the Commissioner be authorized to rent such space for offices and hearing rooms as he deems necessary or advisable at such rental rates as may be approved by the Treasury Board;

(ii) that the Commissioner may engage the services of such staff and technical advisers as he deems necessary or advisable and also the services of counsel to aid and assist him in his inquiry at such rates or remuneration and reimbursement as may be approved by the Treasury Board; and

(iii) that the Commissioner shall report to the Minister of Transport within one year of October 1, 1979.

The Committee of the Privy Council further advise that the Commission to be issued to the said Commissioner not include any areas of enquiry within the terms of reference of the Commission of Inquiry into the Safety of Bilingual I.F.R. Air Traffic Services in the Province of Quebec, appointed by Order in Council P.C. 1976-1588 of the 28th day of June, 1976.

The Committee of the Privy Council further advise that, pursuant to section 37 of the Judges Act, the said Mr. Justice Dubin be authorized to act as Commissioner for the purpose of the said investigation."

When it became apparent that the hearings could not be concluded by October 1, 1980, the reporting date was extended by a subsequent Order-in-Council until October 1, 1981.

You will have noted the broad terms of reference which are included in the Order-in-Council. There have been studies in other jurisdictions relating to aviation safety which I have had the advantage of reading. Those inquiries, for the most part, have been concerned with the aviation safety record of large commercial carriers. Other studies have been made of particular aspects of aviation safety, such as the Commission of Inquiry into the Safety of Bilingual I.F.R. Air Traffic Services in the Province of Quebec, which final report was delivered on August 10, 1979. A study has just been completed in the United States relating to airworthiness certification, but it concentrated on the large passenger aircraft used by the commercial airlines, and there was excluded from the study the certification of airplanes operated by commuter airlines, businesses, and individuals as well as aircraft under 12,500 pounds. The significance of the division for airworthiness standards between aircraft of a gross take-off weight of over 12,500 pounds and those under 12,500 pounds will be dealt with at a later date when I report on the area of Airworthiness.

The inquiry which I have been asked to undertake is of a much greater magnitude, touching upon every matter which affects aviation safety from a legislative and procedural point of view. As I interpret my mandate, I am to inquire into current aviation safety legislation, to consider its adequacy, to ascertain how the Canadian Air Transportation Administration is enforcing the present laws and carrying out its responsibilities, and to make recommendations where I consider it appropriate as to what legislative and procedural changes should be made to improve Canada's aviation safety

record, and to forestall any diminution of aviation safety in the future. The Order-in-Council invites me to give special consideration to aviation safety in Canada as it relates to small aircraft, remote areas and uncontrolled airports. For reasons which will become apparent, I am satisfied that such a study was particularly important and timely.

Upon my appointment I was fortunate to obtain the services of John Sopinka, Q.C. of Toronto, as counsel to the Commission, and Gary Q. Ouellet, of Quebec City, as associate counsel, of whom much will be said later in my final report, and at which time I will have occasion to thank the other members of the staff who assisted me so much in what turned out to be a very arduous task.

Before embarking upon the more formal aspects of the Inquiry, I took advantage of the opportunity of meeting, privately and informally, with those persons whom I was advised had a special interest and expertise in the subject matters contained in my terms of reference. I first met with representatives of all the trade unions and employee associations, whose members are engaged in aviation and in the Canadian aerospace industry. I then met with representatives of the carriers, manufacturers, Canadian Owners and Pilots Association, L'Association des Gens de l'Air du Quebec, the International Flying Farmers and many others. I also met with senior management of the Air Administration.

Apart from the education in aviation matters which those meetings provided, I gained an insight into the principal matters which I learned were worthy of inquiry. I also obtained the assurance of all those with whom I met of their willingness to present evidence and submissions to the Commission. The result of those meetings was most gratifying, and all those who pledged their assistance did so.

With the information and assured assistance obtained in this way as well as considerable research on our own, I concluded that the Inquiry could be conveniently divided into several subject matters. Some of the subject matters were, by their very nature, interlocking, but by conducting the Inquiry in this way particular emphasis could be directed at each stage of the Inquiry on a particular subject matter. The headings which I chose, and which I am satisfied include all the matters referred to in the Order-in-Council, are as follows:

1. Airworthiness
2. Accident and Incident Investigation and Reporting
3. Enforcement
4. Navigational Aids
5. Uncontrolled Airports
6. Personnel

By its very nature, much of the work of the Commission could only be done by research. A comparative study was instituted between the laws and procedures which pertain to aeronautics in Canada with those in the United Kingdom, Australia and the United States, the three countries from which I thought that I could learn the most. With the benefit of the advice that I received from my informal meetings, Commission counsel sought out the best evidence available which related to the subject matters that had to be inquired into. All relevant documents with respect to those matters in the possession of the Air Administration were asked for and readily obtained, and they were all reviewed by Commission counsel. Commission counsel then met with all those who could produce evidence and submissions, interviewed them and arranged for their attendance.

Public hearings were held with respect to all matters that could conveniently be the subject matter of such hearings. At the public hearings both oral testimony and written submissions were received and, for the most part, all witnesses were examined by Commission counsel, and their evidence and submissions tested by the examination of the representatives of the other participants. The hearings were held across the country and in locations most convenient to the witnesses, who desired to give testimony or submit briefs, and in the areas where the subject matters under discussion were of particular concern to those who wished to participate. Many of the witnesses preferred to give their testimony in the French language and did so, and simultaneous translation was made available. In this way the fullest opportunity has been given to all those who desired to appear before the Commission, and the Commission was able to obtain the benefit of the evidence of those with the greatest expertise on the subject matter then being considered and, in particular, I thus had the benefit of obtaining the evidence of the regional employees of the Air Administration.

The hearings were held in the following municipalities:

Hull, Quebec
Toronto, Ontario
Vancouver, British Columbia
Thunder Bay, Ontario
Sioux Lookout, Ontario
Sandy Lake, Ontario
Big Trout Lake, Ontario
Quebec, Quebec
Halifax, Nova Scotia
Cranbrook, British Columbia
Edmonton, Alberta

The first public hearing, at which evidence was taken, was held in Hull on November 19, 1979, and the hearings concluded in Toronto on November 11, 1980. In that interval, the Commission held 116 days of hearings at which over 350 witnesses were called. The transcripts of the oral testimony encompassed over 26,000 pages and, in addition, there were some 30,000 pages of exhibits and written submissions filed with the Commission. When one has regard to the days required for travel and in preparation for the hearings, there were very few days during that year in which the very small staff of the Commission was not fully engaged, and most of those days were, indeed, very lengthy.

By reason of the procedure adopted, there were very few irrelevancies, and little time was wasted. There were few, if any, objections to the procedure adopted or to the evidence submitted, notwithstanding the many conflicts in the evidence and in the opinions expressed. Except with respect to those areas in which there was an allegation of misconduct, the hearings were conducted in an informal, non-adversarial atmosphere, which I think was best suited to the type of inquiry which I sought to conduct. There was little rancour, notwithstanding the conviction of those testifying as to the correctness of their views and the incorrectness of the contrary view.

Although many of the witnesses had some interest of their own to assert, I found the evidence and submissions of all those who participated to have been, for the most part, constructive, evincing a sincere concern about aviation safety in this country.

Many of the witnesses who gave evidence critical of the Air Administration were employees of the Air Administration itself and found themselves in the invidious position of being critical of senior management. They were concerned about their future within the Department consequent upon giving such testimony. Early in the proceedings Messrs. Ed Jensen and David C. Slayter, two civil aviation inspectors, gave testimony which, in some respects, was highly critical of the Air Administration. It was their willingness to come forward which I think, in many respects, paved the way for many other employees within the Air Administration to give testimony. This is not to be taken as an acceptance on my part of all that was said by them, but they were highly motivated as were the other employees within the Air Administration who subsequently testified, and their evidence was invaluable in drawing to my attention areas of concern which might otherwise have gone unnoticed.

The extensive coverage of the Commission hearings by the media also encouraged witnesses to come forth who initially appeared hesitant to do so.

During the course of the Inquiry it was brought to my attention that two witnesses who had given testimony before the Commission were the subject of harassment consequent upon such attendance, and I found it necessary to publicly reprimand the officials responsible for such harassment. As a result of the public assurances to that effect which you gave when this matter was brought to your attention as well as similar assurances given by the Administrator, I am confident that none of the witnesses who testified before the Commission will be prejudiced in any way in their future with the Department by reason of their having given evidence before the Commission.

I appreciate the sensitivity of those in senior management with respect to hearing criticism of their administration publicly aired. One of the serious complaints was the lack of communication between the regions and headquarters, and it was important, in my opinion, that the views of the regions be heard in the presence of senior management, and they in turn hear the response of senior management. In the long run I am hopeful that the public airing of such differences will strengthen the cohesion of the Air Administration in the future.

Although during the course of the Inquiry I took advantage of informal and private meetings with all the major participants for the purpose of clarification of some of the matters presented to me, all controversial matters were aired during the hearings and formed part of the record of the proceedings.

My experience has led me to believe that an inquiry such as this should be held in public so that there is an awareness that the matters being inquired into are thoroughly investigated, and this is particularly so in the case of a departmental inquiry.

I am satisifed that the very public airing of many of the matters brought to my attention has made all persons who have a part to play in aviation safety more aware of the problems that we face and more alert in dealing with them than would have been the case if these hearings had not been held.

Such response has already been evidenced by the action taken by the pilots of the carriers who service Big Trout Lake following our hearings there and reported in the Wawatay News as follows:

> "Pilots of Bearskin Air's northern operations and Big Trout Lake Air Service have banded together to establish rules for safe flying...
>
> The two competing airlines in Big Trout Lake have taken an important step in advancing air safety in the north. In a meeting shortly after the Air Safety Hearing at Big Trout on July 1 the two groups of pilots met and decided to adhere rigidly to the rules and not allow passenger pressure or the pressure of competition to push anyone into overloading or other unsafe flying practices.
>
> Over the years it got to be the point where companies were carrying more than they should have been. . . ."

I was also pleased to note that the Air Administration has responded affirmatively during the year to some aviation safety deficiencies disclosed during the hearings and has been most cooperative with the Commission in undertaking steps to meet some of the other matters publicly aired pending delivery of my report.

Mr. James B. King, Chairman of the National Transportation Safety Board of the United States, testified in Vancouver. It was his opinion that the most effective way to get

action from the regulatory authority responsible for aviation in the United States was by the public disclosure of the aviation system deficiencies detected by the National Transportation Safety Board, and by extensive media coverage of such deficiencies. I hope that that is not the case in Canada, although regretfully, on occasion, it does appear that public disclosure is responded to by more decisive action than might otherwise have been the case.

I thought that it would be most expeditious, and I hope most helpful to you, if I delivered more than one report. I do not propose to detail all the evidence and submissions put before me during the Inquiry. Such an exercise would be too time-consuming, and I think unproductive. I have considered as carefully as I could the evidence and submissions of everyone who came forward, all of which has been useful to me in arriving at my ultimate conclusions and recommendations. The best that I can do is to deal with what I regard as the most significant and important issues, leaving it to the Air Administration to attend to the other matters which form part of the public record, and which I have been given reason to believe from what was stated during the hearings are being attended to by them. Even with respect to those matters that I propose to deal with, I propose only to outline the evidentiary base upon which my conclusions and recommendations are founded.

I would like to acknowledge the important contribution which was made at the public hearings by the Air Administration, its managers and employees, as well as by the Air Transport Association of Canada (ATAC), the Canadian Union of Professional and Technical Employees (CUPTE), the Canadian Air Line Pilots Association (CALPA), the Canadian Air Traffic Control Association, Inc. (CATCA) and the Canadian Air Line Flight Attendants' Association (CALFAA), all of whom played a principal role in each of the phases of the Inquiry. I will have occasion later in my report to also comment on the helpful briefs presented by many others as they relate to a particular phase.

During the course of the Inquiry your predecessor, pursuant to s. 6(a) of the Order-in-Council, requested that I give priority in reporting to the question of accident and incident investigation and reporting. Upon your appointment as Minister of Transport, you reaffirmed this request. Your predecessor also asked me to consider the relationship of provincial coroners and the Department of Transport accident investigators, and the conflicts which have arisen when both were examining into fatal aircraft accidents.

I will report to you in due course with respect to the other matters referred to in the Order-in-Council, but pursuant to the request and because I believe it to be a matter of high priority, I herewith submit Volume 1 of my report which includes my conclusions and recommendations on the subject matter of Accident and Incident Investigation and Reporting as well as the relationship of accident investigators and provincial coroners when inquiring into a fatal aircraft accident.

All of which is respectfully submitted.

Charles L. Dubin.

March 17, 1981

PART I

AVIATION IN CANADA - AN OVERVIEW

Aviation has played and is playing an essential role in the development of this country.

On March 31, 1980 there were 22,698 aircraft on the Canadian Civil Aircraft Register, of which 18,324 had a valid existing certificate of airworthiness or a flight permit. Thus, for approximately every 1,000 Canadians there is one aircraft. 72% of the aircraft on the Register are privately owned, 26% owned by commercial carriers and 2% state aircraft, either federal or provincial. 88% of the aircraft on the Register are small single-engined planes which are used for both commercial and private purposes. There are over 100 corporate jets in use. The Department of Transport (DOT) has a large fleet of fixed and rotary aircraft, and pursuant to the Order-in-Council I will be subsequently reporting on the airworthiness and maintenance of departmental aircraft.

As of March 31, 1980 there were 59,963 licensed pilots in this country with an additional 25,602 student pilot permits in force (including glider and balloon pilots).

On March 31, 1980 there were 884 certificated Canadian air carriers, and 808 carriers of foreign jurisdiction using Canadian airports. The Canadian carriers range in size from such major carriers as Air Canada and CP Air with their large jet fleets to the regional carriers and to the smaller carriers who serve the remote areas.

There are 1,165 airports in this country of which 108 are owned and operated by Transport Canada. The following is a breakdown of the airports:

International	8
National	11
Regional	54
Local Commercial	455
Local	637
	1,165

In the commercial field, in 1978 some 50 million passengers were carried by Canadian carriers who flew a total of approximately 172 million miles. In addition, in that year a billion pounds of goods were transported by air. The revenue for air carriers in 1978 approximated $2.7 billion with expenditures of approximately $2.5 billion. In 1978 over 40,000 persons were employed by the air carriers in Canada, and the industry has shown a steady growth of approximately 9.5%.

On a per capita basis, more Canadians fly aircraft than in any other country in the world and only in the United States is the per capita rate comparable. Only in these two countries is private aviation a major factor. For example, there are approximately four times the number of privately-owned planes in Canada than there are in the United Kingdom. This is not solely due to the adventurous spirit which prevails amongst those who fly privately-owned aircraft, but is, I think, largely a matter of geography.

On the manufacturing side, in 1977 the Canadian aerospace industry employed approximately 31,000, with annual sales of approximately $1 billion. We were advised by the Air Industries Association of Canada that at the present time the Canadian aerospace industry employs 42,000 and has sales of approximately $1.7 billion, of which the export market accounts for 80%. The significance of the manufacturing of aircraft, as it relates to aeronautical legislation, will be considered when I report on Airworthiness.

On the international scene, Canada plays a very significant role. It is host country to the International Civil Aviation Organization (ICAO), and a charter member of one of the top ten nations of the thirty nation ICAO Conference. Canada has representatives on the twelve nation Navigation Commission and has provided leadership within ICAO on many issues. It is also a member of the International Air Transport Association (IATA).

For many of us in this country to fly by air, although most practicable, is, nevertheless, a matter of convenience and a luxury. However, for those who live in the remote areas it is a matter of necessity. Typical of the many briefs which we received from those who reside in the remote areas is the following statement by Chief Stanley Rae, of the North Spirit Lake Band Council, presented to the Commission when we attended at Sandy Lake (a community in Northwestern Ontario).

> "North Spirit Lake is a small community of only 250 people. Our community is accessible only by air. There is no all-weather airstrip, no navigational aids, no beacon, no weather information. Yet we are totally dependent on air travel. Planes are no luxury to us. Planes are our buses, trains and cars. Planes bring in our supplies, evacuate our ill, take us to visit friends and relatives and, increasingly, take us south to meetings with governments."

Those who live in the remote areas of Canada are serviced by carriers which use less sophisticated aircraft than the major and regional carriers, the structure of which is not fail-safe and which does not have the redundancy features of the larger aircraft. The Commission undertook a cross-country audit of many of the air carriers which provide services to those who live in the remote areas. The results of this audit were useful in various phases of the Inquiry, and matters disclosed by it which appeared to require a follow-up and which were not dealt with during the Inquiry will be forwarded to the Air Administration.

Flying in Canada confronts the pilot with the full gambit of challenge, probably unique, by reason of the vast expanses of uninhabited land, hostile terrain, mountainous regions, variable and unstable weather, white-out hazards and, in many areas, inadequate runways, lack of navigational points of reference, lack of navigational aids and lack of adequate weather reporting services. The aircraft is also fully tested by the environment as well as by the corrosive impact on the aircraft in our coastal areas.

How to decrease the risk of accidents and at what cost, which is what aviation safety is all about, affords of no easy solution and confronts those who have the responsibility in this area with an equal challenge.

PART II

CURRENT LEGISLATION

Pursuant to the Aeronautics Act, R.S., c.2, s.3, the Minister of Transport is charged with the following duties:

"3. It is the duty of the Minister

(a) to supervise all matters connectd with aeronautics;

(b) to undertake, and to cooperate with persons undertaking, such projects, technical research, study or investigation as in his opinion will promote the development of aeronautics in Canada;

(c) to construct and maintain all government aerodromes and air stations, including all plant, machinery and buildings necessary for their efficient equipment and upkeep;

(d) to control and manage all aircraft and equipment necessary for the conduct of any of Her Majesty's services;

(e) to operate such services as the Governor in Council may approve;

(f) to prescribe aerial routes;

(g) to cooperate with other officers of Her Majesty, and to assist in the carrying out of any services under their jurisdiction that may require aerial work of any nature, and to collaborate with the officers employed in existing air services of Her Majesty in such extension of their present work as the development of aeronautics may require;

(h) to take such action as may be necessary to secure, by international regulation or otherwise, the rights of Her Majesty in respect of Her Government of Canada, in international air traffic;

(i) to cooperate with the officers of his Department on all questions relating to the air defence of Canada;

(j) to cooperate with the air staffs or authorities of other governments or countries for any purposes pertaining to air services;

(k) to investigate, examine and report on the operation and development of commercial air services within or partly within Canada, including the territorial sea of Canada and all waters on the landward side thereof;

(l) to consider, draft and prepare for approval by the Governor in Council such regulations as may be considered necessary for the control or operation of aeronautics in Canada, including the territorial sea of Canada and all waters on the landward side thereof, and for the control or operation of aircraft registered in Canada wherever such aircraft may be; and

(m) to perform such other duties as the Governor in Council may from time to time impose. R.S., c.2, s.3; 1964-65, c.22, s.7(1)."

It is to be observed that there is no specific reference in the Aeronautics Act to aviation safety, but the duty to be concerned with it is implicit. It is also implied that the duty of the Minister is to be concerned with the economics of aviation and the aerospace industry in Canada. This dual function imposes a special burden since economics and safety may conflict.

PART III

CANADIAN AIR TRANSPORTATION ADMINISTRATION (CATA) - AN OVERVIEW

With respect to the matters referred to me pursuant to the Order-in-Council, the responsibility of the Minister of Transport to carry out the duties assigned to him under the Aeronautics Act is discharged through the Canadian Air Transportation Administration (CATA), a branch of Transport Canada.

CATA employs approximately some 13,000 persons and, although only a branch of the Department of Transport, is itself larger than many other departments of government. For the fiscal year 1978-79 the total expenditure of CATA was just under $650 million with a revenue of approximately $270 million. As set out hereunder, the following analysis details the number of employees, expenditures and receipts for the fiscal year commencing 1975-76 and includes the forecast for the year 1979-80:

CANADIAN AIR TRANSPORTATION ADMINISTRATION

PROGRAM ANALYSIS FROM 1975-76 TO 1979-80

IN MILLIONS

	1975-76 ACTUAL	1976-77 ACTUAL	1977-78 ACTUAL	1978-79 ACTUAL	1979-80 CURRENT FORECAST
PERSON-YEARS	13,358	13,435	13,687	13,227	12,660
% INCREASE (DECREASE)	2.3%	0.6%	1.9%	(3.4%)	(4.3%)
EXPENDITURES					
O & M	366.6	414.0	445.2	479.5	493.4
CAPITAL	220.5	217.1	184.0	154.8	102.9
G & C	8.3	9.1	10.7	13.6	10.2
TOTAL	595.4	640.2	639.9	647.9	606.5
REVENUE	(188.7)	(230.7)	(248.0)	(271.5)	(297.5)
NET PROGRAM	406.7	409.5	391.9	376.4	309.0
ANNUAL % INCREASE/DECREASE	(5.5%)	0.4%	(4.4%)	(4.0%)	(17.9%)
INDEX 1974-75 REPRESENTS 100	94.5	95.1	91.0	87.5	71.8
INTEREST NOT INCLUDED	9,435	31,955	35,833	39,455	1,100

In its brief to the Commission, CATA provided the following general outline of the programs undertaken by it:

"PROGRAM DESCRIPTION (ACTIVITIES)

Direction And Administration - The operation of the offices of the Canadian Air Transportation Administrator and the Regional Administrators and the provision of policy development, planning, financial and personnel administration and other services to the administration.

Airports And Associated Ground Services - The construction, operation and maintenance of civil airports and seaplane docking facilities owned or controlled by the department, excluding Gander, St. John's, Charlottetown, Sydney, Halifax, Saint John, Fredericton, Moncton, Quebec, Montreal, Ottawa, Toronto, London, Windsor, Thunder Bay, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Vancouver and Victoria Airports which are designated as self-supporting.

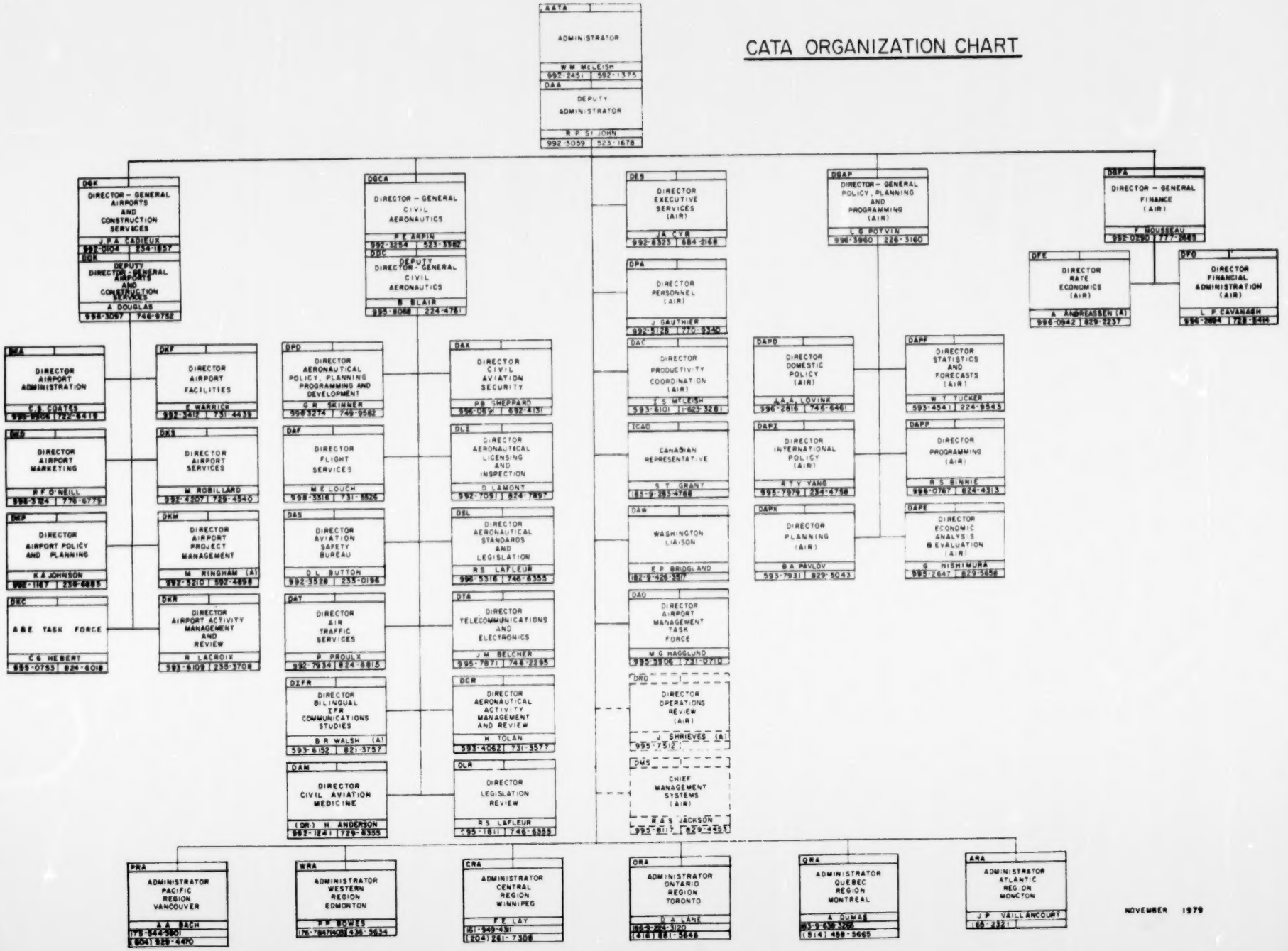
Air Navigational Services - The designation of airways/air routes; the determination of their associated facilities and the development of related standards; the inspection of the airspace involved including the purchase and operation of aircraft used primarily for calibration of navigational aids; the inspection of runways and maneuvering areas; the design, construction, installation, operation and maintenance of telecommunications and electronic facilities; the provision of an air traffic control system for Canada in that international airspace for which Canada has accepted responsibility through the International Civil Aviation Organization; the funding of the meteorological services required in support of aeronautics.

Regulatory Services - The development and enforcement of aeronautics legislation, standards and procedures; the inspection, examination, licensing and certification of aviation personnel, commercial operators and aircraft; the surveillance of aircraft manufacturing and repair; the investigation of aircraft accidents and incidents; the purchase and operation of aircraft used primarily for inspection and those used to provide transportation for visiting foreign dignitaries and senior members of government.

Self-Supporting Airports And Associated Ground Services - The construction, operation and maintenance of self-supporting civil airports owned or controlled by the department, which at present includes Gander, St. John's, Charlottetown, Sydney, Halifax, Saint John, Fredericton, Moncton, Quebec, Montreal, Ottawa, Toronto, London, Windsor, Thunder Bay, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Vancouver and Victoria, and such other airports as Treasury Board may approve."

I set out hereunder the CATA Organization Chart:

CATA ORGANIZATION CHART



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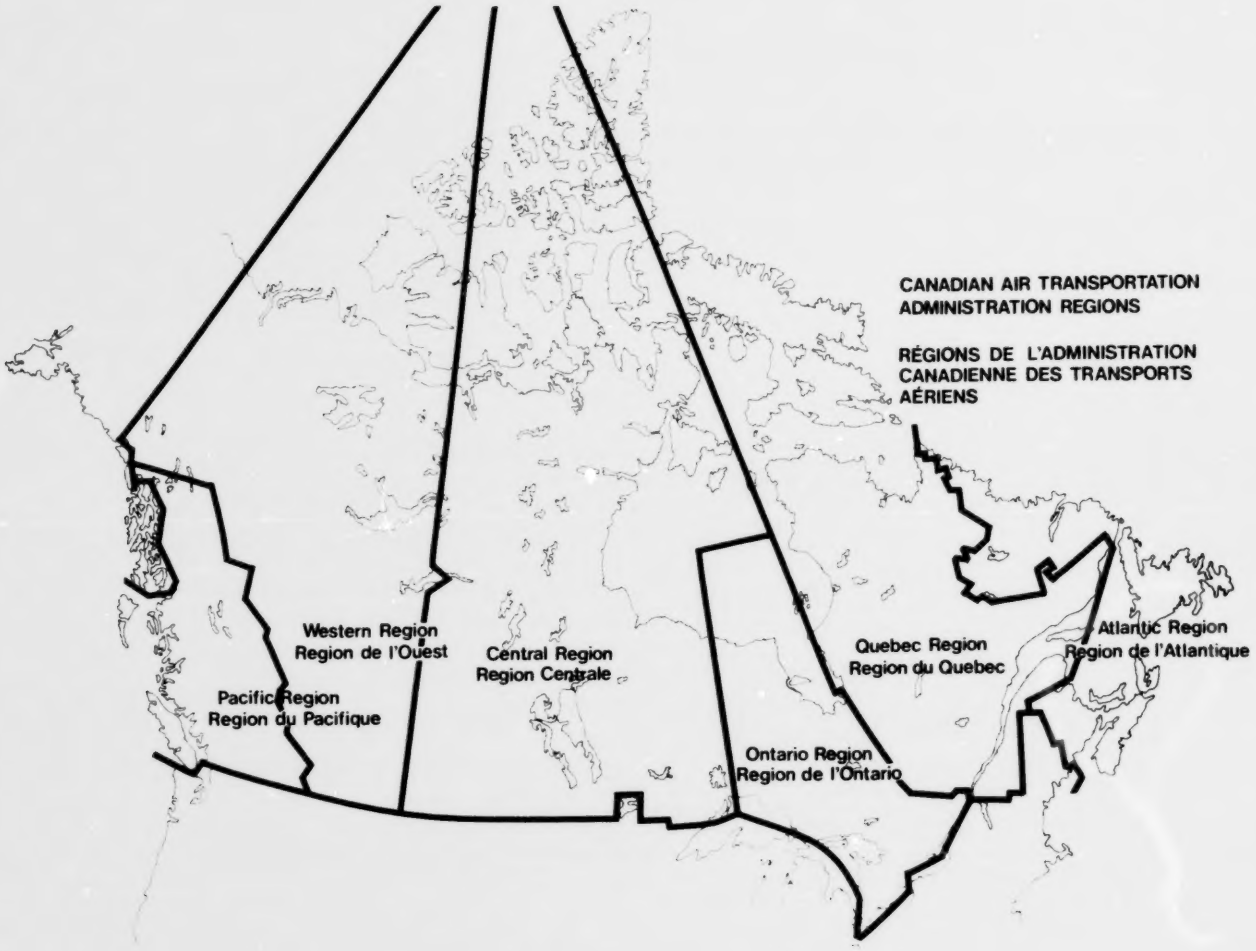
In addition to headquarters, there are six regional offices: Pacific Region (Vancouver); Western Region (Edmonton); Central Region (Winnipeg); Ontario Region (Toronto); Quebec Region (Montreal) and Atlantic Region (Moncton) - each with its own Administrator and support staff.

The following map depicts the territorial divisions of the regions at the time of the hearings:



In its submission to the Commission, the following general observations about the CATA organization were set forth as follows:

> "The CATA organization has changed little since it was adopted in the early to mid 70's, but its predecessor was a simpler organization which did not require the current external dialogue, and which was operated primarily by aviation professionals who were able to plan on the basis of experience and intuitive judgements. However, this changed drastically about 1970 when collective bargaining was introduced into the public service and when the public concern for the environment, and social values led to the participative approach and the complexity of government as it is now known.
>
> These external relations have progressively increased during the 70's to the extent that significant staff resources are directed to this need but unfortunately at the expense of the safety management resources. In fact, this should become evident during the inquiry and so should the fact that the safety system is under constant pressure as a consequence of the compromises made to satisfy the expectations of these external needs or demands. They comprise the CTC, aviation associations, federal departments, industry, unions, provinces, and to some extent ICAO and the International Air Transport Association (IATA). . . .
>
> The external relations with the industry and the aviation associations are primarily co-operative in nature and focus on the consultative process which CATA adopted in the early 70's in an attempt to develop the most practicable and effective procedures and regulations. Similar approaches to the public service unions have been less effective and CATA has been charged with fostering hazardous actions during strikes when efforts were made to operate the CATA system to the extent that its specialists judged 'adequately' safe. The remaining relations with the CTC, provinces, and federal departments require a very specific type of consultation which at times involves conflicting policies and significant adjustments to air transport operating procedures or facilities which may also be another pressure on the safety system."
> (Emphasis added)

The external pressures referred to in the CATA brief are real and understandable, and the complexities of the task assigned to CATA are self apparent from the program description and the organization chart set forth above. Unfortunately, as is fairly acknowledged in the CATA brief, the pressures are at the expense of the safety management system and its resources and also result in delay in the decision-making process in safety matters.

During my informal discussions with those from within the Air Administration as well as those from outside who deal with it, I gained the impression that there is a lack of flexibility within the Air Administration. It was said that the planning procedures for

future action were cumbersome and time-consuming, and the time taken between identifying the problem and implementing the required change was inordinately long. There was a common complaint as to the inability to obtain prompt and decisive action. Although on paper there appears to be a specific delegation of authority within headquarters and to the regions, I was told that in practice few, if any, decisions were made or action taken until the matter, major or minor, sifted through the various strata of authority as disclosed in the organization chart and was eventually passed upon by very senior management. What was complained of most often was a lack of priority so that matters which had an immediate impact on safety were not given immediate or special attention, save in exceptional circumstances. The impressions that I gained from my informal meetings have been, for the most part, confirmed by the documents that I examined and the evidence and submissions made during the course of the Inquiry.

One of the matters which gives me most concern, and which has a direct bearing on accident and incident investigation and reporting, is the resistance of senior management to criticism, often I think of a constructive nature which emanates from within the Air Administration itself, and the failure to take prompt action to counter aviation safety deficiencies when requested to do so by less senior employees within headquarters, or when action is requested from the regions. This is not to say that in every case the criticism was justified. In some cases they were not. But there appears to be a feeling amongst the employees that criticism, even of a constructive nature, is resented by senior management, and the employees are thereby discouraged from advancing suggestions for change. This is of particular significance when one has regard for the role of the Aviation Safety Bureau.

Some examples of the resistance to criticism and failure to take prompt action when required are set out below.

Example - In 1977 following growing concern over the state of aviation safety in Northern Ontario, two civil aviation inspectors from within the Air Administration conducted a study of aviation safety in that area. They did so with great ingenuity, personal risk and dedication. I will deal with their findings in detail when I report on Enforcement. For my present purposes I need only say that the study was fully detailed and documented. At the time of its preparation it was an internal document. The report was highly critical of the air services being provided to the residents of Northern

Ontario and of the Air Administration for having failed to take adequate steps to improve aviation safety in that area, which was described in the study as being "below an acceptable level". Apart from a brief inquiry as to some of the statistics used in the report, an analysis of the report was made by headquarters staff without any prior consultation with the two civil aviation inspectors who had prepared the report. The headquarters' analysis concluded as follows:

> "The study's conclusion is considered somewhat harsh considering the evidence upon which such a conclusion was arrived at. The regulatory inspection function of Transport Canada was also harshly criticized with very little evidence to support such a conclusion. No mention was made of the level of surveillance that had taken place in Northern Ontario in the previous year nor any attempt made to determine the enforcement action that had taken place during the same period. It does become evident after reading the report that its conclusions are based mainly on unsubstantiated statements, statistics of doubtful value and random sampling of flights with 10 air carriers six of which were found wanting to various degrees. Of the six air carriers which were criticized 3 of them were based in Northwestern Ontario where at the time, 30 air carriers were operating. Of the 'over 20 pilots' which were interviewed, the report documented the interviews of 8 pilots only. Three of the pilots and a stewardess who was also interviewed, were or had been in the employ of a carrier based in Northwestern Ontario which had been the subject of an inquest into the fatal crash of an aeroplane in that area. It is possible that their testimony may have been influenced by recent events."

With respect, I do not think that such criticism of the study was warranted, nor could it be said that there was "very little evidence" to support the criticism of the regulatory inspection function of Transport Canada. Indeed, the evidence submitted before the Inquiry confirmed most, if not all, of the conclusions set forth in the report. Be that as it may, however, the analysis made by headquarters reflects the resistance to any criticism that comes from within the Air Administration. The response of the Air Administration to the complaints set forth in the Northern Ontario report was made in light of the analysis of the report rather than based upon the report itself. Although some important steps were taken consequent upon the report, which will be reviewed at a later date, the response of the Air Administration was not as drastic nor as immediate as it would have been if the significance of the report had not been minimized by the analysis.

Example - Following a crash of a departmental aircraft in May of 1979, as a result of which two employees of Transport Canada were killed, an internal audit was conducted

with respect to the manner in which departmental aircraft were being maintained. The audit was headed by the Chief of Airworthiness of the Air Administration. It was the third of such audits, all of which will be discussed in my report on departmental aircraft. The report was highly critical of the manner in which Transport Canada itself was maintaining its own aircraft. Headquarters resisted the findings of the audit team, and the response was to conduct an audit of the audit. Again, although some response was made, which will be reviewed later, the resistance to the audit was, in my respectful opinion, quite inappropriate, and there should have been immediate action taken to deal with the many criticisms reflected in the report of the audit team.

Example - A civil aviation inspector from the Atlantic Region testified before the Commission on the subject of Airworthiness, and the maintenance of airworthiness requirements. His evidence was supported by a very detailed and well-documented brief, which was highly critical of the Air Administration. Whether one agrees or not with what was stated in the evidence and brief, the sincerity and dedication of the witness to his responsibilities as a civil aviation inspector and of his concern for aviation safety could not be fairly called into question. As a result of his testimony, the civil aviation inspector was ostracized by senior management of the Atlantic Region to such an extent that it called for intervention by the Commission to remedy the wrong that was being done to him.

Example - In 1979 the Aviation Safety Bureau established a system of aviation deficiency notices. The notices are prepared from an analysis of accident and incident investigation reports and forwarded to the head of the department who would be directly concerned with the deficiency noted. By making use of the accident and incident investigation reports with a view to accident prevention in the future, the idea was an excellent one. For reasons which will be subsequently detailed, I do not think the aviation safety deficiency notices received the direct and immediate response which I think many, if not all of them, warranted, and indeed in many cases the responses were often casual.

Example - In 1977 the Regional Controller of the Central Region requested authority to suspend the operating certificate of Tomahawk Airways Ltd. The records disclosed that Tomahawk Airways had committed numerous breaches of the Aeronautics Act, Air Regulations and Air Navigation Orders.

On April 27, 1977 the Regional Controller of Civil Aviation wrote headquarters, and the memorandum concluded:

> "The lack of proper management and supervision of Tomahawk Airways Ltd. is contributing to an unsafe condition, and authority is requested for a suspension of their Operating Certificate for a period of 14 days, unless further action is taken by the company to hire, document, and utilize qualified personnel."

The telex response from Mr. Bolduc, Director, Aeronautical Licensing and Inspection Branch for headquarters, was as follows:

> "OCA WINNIPEG
> DLI 4 HAVING CAREFULLY REVIEWED YOUR LETTER APRIL 27, 1977, AND SUPPORTING DOCUMENTATION TOMAHAWK AIRWAYS, IT IS NOT CONSIDERED THAT YOU HAVE A STRONG CASE FOR OPERATING CERTIFICATE SUSPENSION AS PROVIDED UNDER SECTION 703(A) OF THE AIR REGULATIONS. THERE MAY BE A CASE FOR CHARGES UNDER THE PROVISIONS OF AIR NAVIGATION ORDER, SERIES VII, NO. 3. IN ANY EVENT SUSPENSION ACTION SHOULD NOT BE TAKEN UNTIL (1) YOU SATISFY YOURSELF IN CONSULTATION WITH YOUR DEPARTMENT OF JUSTICE REPRESENTATIVE THAT SUSPENSION ACTION CAN BE SUCCESSFULLY DEFENDED, IF NECESSARY, IN THE FEDERAL COURT; (2) YOU FULLY CONSIDER THE POSSIBILITY OF EMBARRASSMENT TO THE MINISTER AND ANY OTHER POTENTIAL POLITICAL IMPLICATIONS WHICH MAY RESULT FROM SUSPENSION ACTION; (3) YOU ARE PREPARED TO DEFEND YOUR ACTIONS AND JUDGEMENT IN THE EVENT OF POLITICAL REPRESENTATIONS OR APPEALS TO THE MINISTER OR OTHER SENIOR STAFF IN THIS REGARD; AND (4) THE OPERATOR IS GIVEN OPPORTUNITY TO SHOW CAUSE WHY THE PROPOSED ACTION SHOULD NOT BE TAKEN. IN THIS REGARD 1.2.1.3 INSPECTION INSTRUCTIONS SHOULD BE USED FOR GUIDANCE."

The Regional Controller responded indignantly to the Director General, Civil Aviation, by memorandum dated June 17, 1977, and the response is of sufficient importance to set it out in detail:

> "Tomahawk Airways
>
> Reference is made to our recent request to LIOC for Regional authority to temporarily suspend the Operating Certificate held by the subject Company (Appendix 'A'). We are dismayed at the lack of support from DLI as contained in their reply, telex DLI 4 dated May 12, 1977, (Appendix 'B').

In part the telex states, 'it is not considered that you have a strong case for Operating Certificate suspension...' On the contrary we have a very strong one considering the company's apathy towards meeting the requirements of ANO VII, No. 3 with respect to proper management, supervision and maintenance.

This apathy dates back to March 1975 in a letter to the Chairman of the Air Transport Committee from Mr. John M. Reid, MP, Kenora Rainy River, complaining about the standard of performance of Tomahawk Airways, as a result of an air crash, as well as, lack of Transport Canada attention to this airline (Appendix 'C'). This was brought further into the open by an accident investigation Report (C 50013 Beech 18, CF-FXH) on February 7, 1975, which identified that Transport Canada had not enforced operational and maintenance standards, as well as, a lack of adequate control by the company of its operating and maintenance standards (Appendix 'D'). The resulting court action in October 1976 resulted in a conviction of the company and the Owner/Manager. The attached outline of court action outlines the convictions which resulted from this accident as well as, a further violation and conviction (Appendix 'E').

In support of our statement that we have a strong case is correspondence to the company, their replies or lack thereof which has been going on since January 1976 (Appendix 'F'). In our letter to the Company dated April 7, 1977, we made our final request to the company to nominate qualified personnel within fourteen (14) days. This was sent as a result of pure frustration on our part to get this company into line. Subsequently, we have received nominations from the Company for a new Operations Manager, Chief Pilot and a new maintenance contract company which now should meet the requirements we are looking for and the Operating Certificate suspension may not be required.

Due to our dismay of the telex reply, we feel that it was not justified considering the facts as presented. It is difficult to keep the morale of my inspectors at a keen level when they do not receive justified support in the course of their inspection duties. We have carefully considered all four items as outlined in DLI's telex and are most prepared to face the implications which may result from such a suspension.

This matter was discussed with the Department of Justice and we received total support of Operating Certification suspension in fact they were amazed that we have tolerated a situation such as this for so long. In response to Item 2 we are fully aware of the ramifications of such action and are amazed that such a statement as an 'Embarrassment to the Minister.' In fact we could be 'embarrassed' to a far greater extent by omitting to discharge an obligation than by the act of doing so. If it could be shown that an accident occurred because we failed to enforce the Regulations and suspend an unsafe operator then we would stand in great peril of successfully being sued and quite properly so.

As far as the political implications are concerned one need only look to the political situation in Northwest Ontario and the burning question of 'Air Safety'. We stand to gain great credibility from such a suspension. We have evidence of two operators now - who by suspension now run a safe operation. They in fact admitted to us that they couldn't believe that Transport Canada would suspend an Operating Certificate. Northwest Ontario is once again in the spotlight with the recent crash of a DC 3 at Pickle Lake, Ontario.

In our normal course of duties we normally take legal action when infractions occur, and will pursue this route if it is an isolated incident. However, when a company such as Tomahawk Airways shows complete disregard for Regulations, court action may serve one purpose, but, in the meantime, the company can continue to operate while legal proceedings are in process. This can be upwards of one year's duration. As was the case with the original case involving the crash of the Beechcraft 18.

We recognize fully that we must be in a position to justify our actions and are prepared to face the music as necessary in the course of any regulatory activity, similarly we should be criticized if we don't carry our duties promptly and efficiently. The question is are we to seek full compliance with our Regulations and directives or are we to back off and allow commercial operators to operate without key personnel.

This is just another case where Regional authority for Operating Certificate suspension is required. If we cannot receive support from Headquarters, we cannot carry out our function as we are charged to do."
(Emphasis added)

It is apparent that the very strong memorandum from the Regional Controller, Civil Aviation, in the Central Region had no impact when it is observed that on August 12, 1977 the following memorandum from P. E. Arpin, Director General, Civil Aeronautics, was forwarded to all Regional Controllers reaffirming the views of Mr. Bolduc. The memorandum reads as follows:

"Operating Certificate Suspension

Further to my letter dated February 1, 1977, to OCA with a copy to all Regional Controllers, Civil Aviation, the following procedure is an amendment to paragraph two of that letter and should be implemented immediately.

If, as a result of a Base Inspection, discrepancies are found in the operation, consideration must be given to laying charges under the Regulations in lieu of Operating Certificate suspension. In any event, recommendation for suspension should not be taken until:

(a) you satisfy yourself in consultation with your Department of Justice representative that suspension action can be successfully defended, if necessary, in the Federal Court;

(b) you fully consider the possibility of embarrassment to the Minister and any other potential political implications which may result from suspension action;

(c) you are prepared to defend your actions and judgement in the event of political representations or appeals to the Minister or other senior staff in this regard; and

(d) the carrier is given the opportunity to show cause why the proposed action should not be taken. In this regard, Section 1.2.1.3 of Inspection Instructions should be used for guidance.

Regional officials are requested to advise their staff on this procedure."

Mr. Arpin testified at the hearings in Thunder Bay. He explained that the Bolduc telex and his own memorandum had been misunderstood, and that there was no intention that political embarrassment should play a part in the determination of whether an operating certificate should be revoked. A subsequent memorandum was issued to clarify the previously given instructions, and the authority to revoke certain classes of operating certificates has now been given to the Regional Administrator. This example is indicative, however, of the failure of headquarters to support action requested by the Regions. The removal of an operating certificate, is, of course, a very serious step, and such action should not be taken lightly. The carrier should be given a full opportunity to meet the case being put against him. However, in this case it is difficult to understand how headquarters could be of the view "that the region did not have a strong case for operating certificate suspension" in light of the past record of this particular carrier. There also appears to be an undue concern of judicial intervention or the intervention made by way of political representation.

Example - The report of a fatal accident in British Columbia, which accident occurred in September, 1978, was not finalized until December, 1979. Major accident investigation reports, which are for the most part initiated in the Region, are not finalized until first reviewed by headquarters and subsequently considered by the Accident Review Board. Accident investigations are often complicated, difficult and time-consuming. However, it is the delay following the completion of the accident investigation report by the accident investigator and its final publication which, I think, is in many cases inordinate. The report is not released to the public until it is finalized, and the lessons to be learned

from the accident are not used for the purpose of accident prevention until the whole process is completed.

COMMENT

What I have stated above is not intended to be a reflection upon the dedication of the senior management of CATA to aviation safety. In many respects they have effectively exercised their authority and carried out their responsibilities to that end. On the basis of statistical information set forth later in this report, Canada's aviation safety record compares favourably with that of most major air transportation nations, but on the basis of the same statistics Canada's ranking amongst such nations has dropped slightly in recent years. Although, save for 1979, the rate of accidents has continued to decline, the rate of improvement has not kept pace with that of some other comparable countries, and particularly with that of the United States. It is also to be noted that the past safety record is not necessarily a good predictor of future success. Furthermore, on the evidence submitted to the Commission, which will be discussed in subsequent reports, I fear that unless remedial action is taken in many areas in the not too distant future, there will be a serious decline in our safety record. It is of some comfort to know that many of the matters brought before the Commission, which disclosed aviation safety deficiencies, are now being presently addressed by the Air Administration.

It was common ground that there was room for improvement to meet our present and future needs, and there is, therefore, no room for complacency.

The evidence has shown that there are, indeed, heavy pressures on senior management. At the conclusion of the hearings, Mr. Walter McLeish, the Administrator, in a forceful defence of the Air Administration, in amplifying what had been submitted earlier, stated in part as follows:

> "I have approached this last appearance with one thought uppermost in my mind, namely that the Terms of Reference require you to look into the management of the air transportation system in the Canadian Air Transportation Administration. I recognize that this theme has prevailed throughout each Phase of the Inquiry, and that you have provided ample opportunity for management to respond in each Phase to the evidence. Further, when we indicated a need for more time to respond to briefs you were very helpful and assuring in your comments.

Now the Terms of Reference require you to investigate the management of CATA. But CATA is not managed solely by its managers, it is merely a part of the Transport Canada management system. And we the managers of CATA wish that time had permitted another phase to look into the departmental management structure and its role in managing CATA. . . .

I refer you to that because the Assistant Deputy Minister of Personnel, Finance, Public Affairs, of Review, Co-ordination, all these Assistant Deputy Ministers each has a functional responsibility. And in fulfilling their obligations, that means that they have a major decision-making role in the management of the Canadian Air Transportation Administration. . . .

The impact that the Departmental Administration, and that is what this upper level is called in Air Administration, is felt daily, it is felt at headquarters, it is felt in the Regions. In the name of a functional direction it enables a manager at the third or fourth level down from the Assistant Deputy Minister to give a direction to the Manager in the Air Administration three or four levels down. I know nothing about it, and it could have a detrimental impact in the operational areas. We attempt, through committee structures and appropriate communications, to prevent these things from happening, but it is not possible in a large complex corporation to do this in a tidy way, and it is always a contentious issue between the Air Administration and the Department.

So I would like to go on from the R chart and say that we believe if we had been able to examine management in depth we would have exposed aspects which even the Auditor General and the Controller General could not deal with. Namely, the impact of management on the primary function of operating a safe and efficient air transport system. . . .

It could be that the evolution of the air transportation system, as in evidence before you, has only been described by the Air Administrator, and that only his evidence of the problems and issues of 10 and 20 years ago is available. Thus only the Administrator's evidence speaks to the fact that the problems and issues were recognized and attempts made to correct them, and that the failures to set in motion the corrective measures could well be linked to the fact that the departmental and governmental management systems do not and cannot match the dynamic nature of air transport. Thus there is a trail of unsuccessful attempts to solve problems and issues, and these provided an opportunity for interested parties to allege that management, was ineffective, or inefficient, or incompetent, or even delinquent. . . .

We were unable to manage the total system. So we believe that facts to balance the record have not been heard except from the Air Administration and as a consequence the Air Administration management feels exposed by the evidence, and would have welcomed the record to show the actual strengths and weaknesses of CATA and DOT management, and that the causes would be there for all to see in the aftermath of the inquiry. . . .

> In fact the focus at times might have even been on the central agencies, or government decisions rather than inter-departmental management. I refer to the cross-coupling factors a few minutes ago. . . .
>
> Now, in the opening brief, I indicated that the National Safety Plan, and I quote:
>
> > 'Should enable terminal, way and vehicle to possess a common approach to failure management, such that a fail-safe or fail operational concept exists. This is not the case at present, and as a consequence there are weak links in the safety system which are more prevalant in the terminal and the way than the vehicle.' . . . "

Mr. McLeish acknowledged that my terms of reference did not include an all encompassing inquiry into the Department of Transport as such, but was limited to a departmental inquiry of that part of the activity of the Department of Transport administered by CATA. It is, however, of significance that prior to the closing statement made by the Administrator, there had been no evidence submitted that CATA had been hampered in achieving its objectives as a result of the lack of support from the Department of Transport, and because of the absence of such evidence and by reason of my terms of reference, I did not inquire further into this complaint, nor did I think it appropriate to ask for a broadening of my terms of reference.

I appreciate the burdens that are imposed on the senior management of CATA, but this is a burden borne by all senior civil servants in any department of government. Such burdens do not relieve senior management from the obligation to establish an organization within CATA so structured that all those pressures referred to are not at the expense of the aviation safety system, which is admittedly the case today. Further, I am not satisfied that the failure to have done so should be attributed to outside pressures.

The evidence also has disclosed that by reason of the rapid growth of aviation and the aerospace industry in Canada, there are weaknesses in the aviation safety system which must be addressed if we are to improve our present record and forestall the diminution of that record in the future. The demands on CATA are increasing, and yet, as has been noted, the structure of CATA has throughout this period remained for the most part constant.

During the course of the Inquiry, the Commission was advised that the Administration has been giving consideration to a restructuring of the organization of CATA to better

meet the aviation safety deficiencies disclosed and, at the conclusion of the hearings, submitted proposals for the consideration of the Commission. The proposed changes that I speak of do not relate to accident and incident investigation and reporting and will be dealt with in subsequent reports.

In a sense all matters dealt with by CATA are safety-oriented, but some matters, however, are more directly related to safety than others and require more prompt and decisive action. Throughout the hearings it was frequently stated that it was by reason of lack of resources that more prompt and decisive action was not taken to meet many of the matters disclosed in the evidence. This might be true of some of the issues raised, but, in my respectful opinion, the lack of resources is not the answer to all the complaints aired. To have taken action in the examples which I have given, and in many other matters which will be subsequently dealt with, would not have required additional resources.

In my opinion there must be structural changes in the organization of the Air Administration and a change in the procedures presently in effect if current and future safety issues are to be dealt with promptly and efficiently.

One such change relates to the investigation and reporting of accidents and incidents presently undertaken by the Aviation Safety Bureau which now forms part of CATA. It is universally accepted that the investigation and reporting of accidents and incidents is the best method available to prevent accidents in the future. To be effective the responsibility for such duties should be placed in the hands of a tribunal independent of the Air Administration and the Department of Transport itself. One of the traditional roles of this kind of tribunal is to bring to the attention of the regulator the deficiencies detected in order that the regulator take remedial action. Such an independent tribunal would be free of the inhibitions presently imposed upon it by reason of its relationship to the regulator, and it can be expected that its recommendations would have a greater impact than those received "in-house" which, as I have mentioned above, have in many cases been ignored.

For these reasons as well as for others which will be presently discussed, I am satisfied that the responsibility for accident and incident investigation and reporting should be placed in the hands of a tribunal completely independent of Transport Canada.

PART IV

CURRENT ACCIDENT AND INCIDENT INVESTIGATION LEGISLATION

I set out hereunder the pertinent statutory framework which presently governs accident and incident investigation and reporting:

"AERONAUTICS ACT

6. (1) Subject to the approval of the Governor in Council, the Minister may make regulations to control and regulate air navigation over Canada, . . . and, without restricting the generality of the foregoing, may make regulations with respect to

. . .

(m) the preservation, protection and removal of aircraft involved in accidents, including the cargo thereof, the preservation, protection, removal and testing of any part of such aircraft and the protection of aircraft accident sites; . . . .

(o) the investigation of any accident involving an aircraft, . . . or of any incident involving an aircraft that, in the opinion of the Minister, endangered the safety of persons, . . . and with respect to the taking of statements by investigators for the purpose of any such investigation.

(2) Any regulation made under subsection (1) may authorize the Minister to make orders or directions with respect to such matters coming within this section as the regulations may prescribe. . . .

(5) Every person who violates an order or direction of the Minister made under a regulation, or who obstructs or hinders an investigation carried on under this Act or the regulations, is guilty of an offence and is liable on summary conviction to a fine not exceeding one thousand dollars or to imprisonment for a term not exceeding six months or to both.

. . .

8. (1) The Minister may establish a board of inquiry to investigate the circumstances of any accident involving an aircraft or of any alleged breach of any regulation made under section 6 or of any incident involving an aircraft that, in the opinion of the Minister, endangered the safety of persons, and may designate the persons that are to be members of that board.

(2) Every person designated by the Minister as a member of a board of inquiry has and may exercise all the powers of a person appointed as a commissioner under Part I of the Inquiries Act, including the powers that may be conferred on a commissioner under section 11 of that Act, and may administer such oaths and take and receive such affidavits, declarations and affirmations as are necessary for the purpose of the inquiry. . . .

(4) Each board of inquiry shall send a full report of the inquiry conducted by it to the Minister."

* * * * * * *

"AIR REGULATIONS 7th Edition (1978) C.R.C., c.2

101. In these Regulations,

. . .

'aircraft accident' means an occurrence associated with the operation of an aircraft that takes place between the time that any person boards the aircraft with the intention of flight and the time that all such persons have disembarked therefrom, in which

(a) any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or

(b) the aircraft receives substantial damage or is destroyed;

'aircraft accident site' means the area of land or water where an aircraft accident has occurred and includes any area in which are located the aircraft, any contents from or parts of the aircraft and any cuts, impressions, slashes, tears or other marks in or upon the ground or on any structure, vegetation or other matter located thereon that are made by the aircraft or the contents or parts of the aircraft;

'aircraft incident' means an incident involving an aircraft that, in the opinion of the Minister, endangered the safety of persons;

. . .

'aviation safety investigator' means a person designated by the Minister to investigate aircraft accidents and aircraft incidents;

. . .

104. The Minister may make orders or directions prescribing standards for the supervision and control of aeronautics and conditions under which aircraft registered pursuant to these Regulations may be operated and, without restricting the generality of the foregoing, may make orders or directions prescribing standards and conditions . . . .

(h) that will ensure uniformity in the notification, investigation and reporting of aircraft accidents;

. . .

533. Where the pilot-in-command of an aircraft declares that an emergency situation exists as a result of which it is necessary for the appropriate air traffic control unit to give priority to the aircraft, the pilot-in-command shall, if requested to do so, make a full written report of the

incident to the air traffic control unit within 48 hours after the request has been made.

. . .

832. (1) Where an aircraft accident occurs, the pilot-in-command and the operator of the aircraft involved shall, as soon as possible thereafter and by the quickest means of communication available, report to the Minister the date and place of the accident and such other particulars thereof as the Minister may direct.

(2) Where an aircraft is missing on a flight, the owner and the operator of the aircraft shall, by the quickest means of communication available, notify the Minister in accordance with any direction of the Minister in that behalf.

(3) Performance by any person of any duty imposed by this section to report an aircraft accident or to notify the Minister of any aircraft missing on a flight relieves any other person from the obligation to perform the duty so imposed.

833. (1) No person shall displace, move or interfere with an aircraft involved in an aircraft accident or the contents of any such aircraft, without first having obtained permission to do so from the Minister, except that the aircraft or any part or contents thereof may be displaced or moved as may be necessary to extricate any person, to prevent destruction by fire or other cause or to avoid danger to any person or property.

(2) Subject to subsection (1), no person shall interfere with or otherwise disturb an aircraft accident site.

(3) Where an aircraft is to be displaced or moved pursuant to subsection (1), the person directing or otherwise supervising or arranging the action shall, to the fullest extent possible in the circumstances and prior to the moving of the aircraft, wreckage, aircraft contents or the disturbance of the site, record by means of a diagram, photographs and notes, the condition of the aircraft, aircraft contents and aircraft accident site.

834. (1) Where an aircraft accident occurs, the operator or his representative shall, to the fullest extent possible, preserve and protect

(a) the wreckage of the aircraft, its contents and the aircraft accident site until such time as an aviation safety investigator arrives to take charge or otherwise authorizes the release of the wreckage of the aircraft, its contents and the aircraft accident site,

(b) the flight data and cockpit voice recorders and the information recorded therein, and

(c) all other records and documents and all materials pertaining to

(i) the flight during which the accident occurred,

(ii) the crew members involved, and

(iii) the aircraft, its contents and components,

and shall surrender the data, recorders, information, records, documents and materials referred to in paragraphs (b) and (c) to an aviation safety investigator on demand.

835. (1) The Minister may designate a person as an aviation safety investigator to investigate any aircraft accident.

(2) In respect of any aircraft accident, an aviation safety investigator shall have the authority

(a) to enter the aircraft accident site whether it is located on private or public property and make any necessary arrangement for

(i) the protection of the aircraft accident site, and

(ii) the control of access of all persons to the aircraft accident site;

(b) to examine, preserve, remove, test or arrange for the testing of any part of the wreckage or its contents and any marks made by the aircraft;

(c) to require the performance of autopsies on flight crew members and passengers and to require such other medical examination of human remains as he deems necessary and, for this purpose, to arrange for the transportation of human remains to appropriate facilities;

(d) to enter the premises of the owner, manufacturer, repairer, servicer or operator of any aircraft, aircraft engine or component of any aircraft or aircraft engine involved in an aircraft accident, to inspect the premises including any equipment, stock or records found therein and to take possesson of samples thereof; and

(e) to take statements and hear and receive evidence upon oath or otherwise.

(3) Where an aircraft incident occurs, an aviation safety investigator has the authority

(a) to enter and examine the aircraft and its contents, examine any marks made by the aircraft and take possession of the

flight data recordings and any other thing that might assist in determining the cause of the incident;

(b) to enter at any reasonable time any premises of the owner, manufacturer, repairer, servicer or operator of any aircraft, aircraft engine or components of any aircraft or aircraft engine involved in the incident and inspect any such premises including any equipment, stock or record found therein; and

(c) to take statements from any person having information concerning the aircraft incident.

836. (1) An aviation safety investigator may, by writing under his hand, require any person to attend and give evidence before him.

(2) Every person required to give evidence before an aviation safety investigator in the manner prescribed in subsection (1) shall attend and give evidence upon being so required.

(3) Any person who attends and gives evidence before an aviation safety investigator pursuant to this section, is entitled to be paid

(a) reasonable travelling and living expenses incurred by him in so attending and giving evidence; and

(b) the witness fees prescribed in the tariff of fees in use in the superior courts of the province in which his evidence is given.

837. An accident to a foreign aircraft that occurs in Canada or the waters of Canada, shall be investigated and the provisions of Annex 13 to the Convention on International Civil Aviation shall apply to the investigation except for and to the extent of any difference to Annex 13 that may be filed with the International Civil Aviation Organization by CANADA."

* * * * * * *

"AIR NAVIGATION ORDER, SERIES VIII, NO. 1

AIRCRAFT ACCIDENTS AND MISSING AIRCRAFT

1. This Order may be cited as the Aircraft Accident and Missing Aircraft Order.

2. In this Order,

(a) **'serious injury'** means an injury that requires hospital or medical treatment or results in the suspension of normal activities for a period of five or more days and includes unconsciousness, fracture of any bone except a simple fracture of a finger or a toe, lacerations of muscles or lacerations that cause severe

hemorrhages, injury to any internal organs, second or third degree burns and any burn involving more than five per cent of the body surface; and

(b) **'substantial damage'** means damage or structural failure that adversely affects the structural strength, performance, or flight characteristics of an aircraft and that would normally require major repair or replacement of the affected component except that engine failure, damage limited to an engine, bent fairings or cowlings, dented skin, small punctured holes in the skin or fabric, damage to propeller blades, damage to tires, engine accessories, brakes or wing tips are not deemed to be substantial damage.

3. Where the pilot-in-command or operator of an aircraft is required under section 826 of the Air Regulations to report the particulars of an aircraft accident that resulted in death or serious injury or in the aircraft being substantially damaged or destroyed, he shall

(a) as soon as possible after the accident and by the quickest means of communication available, report the particulars set out in Schedule 'A' to a Regional Director, Air Services, or, if the accident occurred outside Canada, to the Director, Civil Aviation Branch, Department of Transport, Ottawa; and

(b) subsequently, within such time as he may be directed, report such additional particulars of the accident as the Regional Director, Air Services, the Director, Civil Aviation Branch or an aircraft accident investigator may direct.

4. Where the owner or operator of an aircraft is required under section 826 of the Air Regulations to give notification of an aircraft missing on a flight, he shall

(a) by the quickest means of communication available, report the particulars set out in Schedule 'B' to a Regional Director, Air Services, or, if the flight originated outside Canada, to the Director, Civil Aviation Branch, Department of Transport, Ottawa; and

(b) subsequently, within such time as he may be directed, report such additional particulars of the missing aircraft as the Regional Director, Air Services or the Director, Civil Aviation Branch, may direct."

Amendment No. 3
October 7, 1964

"SCHEDULE 'A'

PARTICULARS TO BE REPORTED RESPECTING AIRCRAFT ACCIDENTS

(A) Type, nationality and registration marks of the aircraft.

(B) Name of the owner, operator and hirer, if any, of the aircraft.

(C) Name of the pilot-in-command of the aircraft.

(D) Date and time (standard) of the accident.

(E) Last point of departure and point of intended landing of the aircraft.

(F) Position of the aircraft with reference to some easily defined geographical point.

(G1) Number of crew killed and number of crew seriously injured.

(G2) Number of passengers killed and number of passengers seriously injured.

(H) Nature of the accident and the extent of damage to the aircraft, so far as is known, and opinion as to cause of the accident."

Amendment No. 3
October 7, 1964

"SCHEDULE 'B'

PARTICULARS TO BE REPORTED RESPECTING MISSING AIRCRAFT

(A) Type, nationality and registration mark of the aircraft.

(B) Name of owner, operator and hirer, if any, of the aircraft.

(C) Name of the pilot-in-command of the aircraft.

(D) Date and time (standard) of last known take-off of the aircraft.

(E) Last known position of the aircraft.

(F) Last point of departure and point of intended landing of the aircraft.

(G) Names and addresses of flight crew members and passengers aboard the aircraft.

(H) Action being taken to locate the aircraft."

Amendment No. 3
October 7, 1964

PART V

AIRCRAFT ACCIDENT STATISTICS OBTAINED FROM THE AVIATION SAFETY BUREAU

For the purposes of statistical analysis, the following are the relevant definitions:

"**Accident** - An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

A) A person is fatally or seriously injured as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, except when the injuries are from natural causes, are self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

B) The aircraft incurs damage or structural failure which adversely affects the structure strength, performance or flight characteristics of the aircraft and which would normally require major repair or replacement of the affected component;

NOTE: Specifically excluded are:

- Engine failure;
- Damage limited to an engine or its accessories; or to propeller/rotor blades;
- bent fairings or cowlings;
- small dents or puncture holes in the skin;
- damage to wing tips, antennas, tires or brakes; or,

C) The aircraft is missing or is completely inaccessible.

NOTE: An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

Incident - An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation."

The following tables provide a statistical analysis of accident and activity data in Canada for the years 1970 to 1979:

TABLE	TITLE
1	Number of accidents in each year, by type of operation
2	Number of fatal accidents in each year, by type of operation
3	Number of fatalities in each year, by type of operation
4	Number of accidents as a percentage of total accidents, by type of operation
5	Accident rate (number of accidents per 100,000 hours), by type of operation
6	Accidents involving commercially registered airplanes, over 12,500 pounds 1976 to 1979
7	Accidents involving airplanes - 12,500 pounds and under, and airplanes - over 12,500 pounds, 1970 to 1979, commercially registered airplanes.
8	Accidents involving commercially registered airplanes 12,500 pounds and under, 1976 to 1979.
9	Fatal accident rate (number of fatal accidents per 100,000 hours), by type of operation
10	Number of hours flown (thousands of hours), by type of operation
11	Number of hours flown as a percentage of total hours flown, by type of operation

12	Accident and activity data for all operations
13	Accidents and activity data for scheduled operations
14	Accidents and activity data for unit toll non-scheduled operations
15	Accident and activity data for charter and contract operations
16	Accident and activity data for fixed wing charter operations
17	Accident and activity data for helicopter charter operations
18	Accident and activity data for commercial non-revenue operations
19	Accident and activity data for specialty: RF and FT operations
20	Accident and activity data for specialty: others operations
21	Accident and activity data for fixed wing specialty operations
22	Accident and activity data for helicopter specialty operations
23	Accident and activity data for state operations
24	Accident and activity data for private operations, 1970 to 1978

TABLE 1

NUMBER OF ACCIDENTS IN EACH YEAR, BY TYPE OF OPERATION

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Scheduled operations	3	4	3	3	2	2	2	1	3	4
Unit toll non-scheduled	7	10	11	12	4	10	8	6	11	10
Charter and contract	128	126	151	172	169	140	157	116	124	171
Fixed wing charter	**84**	**82**	**82**	**109**	**121**	**96**	**106**	**82**	**76**	**112**
Helicopter charter	**44**	**44**	**69**	**63**	**48**	**44**	**51**	**34**	**48**	**59**
Flying clubs	20	27	20	30	21	22	28	27	25	32
Specialty: RF & FT	57	62	81	87	103	92	85	82	82	88
Specialty: others	22	42	18	42	39	30	33	27	41	40
Fixed wing specialty	**66**	**82**	**85**	**109**	**114**	**103**	**89**	**88**	**98**	**108**
Helicopter specialty	**13**	**22**	**14**	**20**	**28**	**19**	**29**	**21**	**25**	**20**
State operations	3	7	7	6	3	4	9	9	5	7
Private operations	267	249	309	351	328	362	355	392	372	341
Commercial non-revenue	12	17	14	10	14	23	22	33	33	27
All operations	519	544	614	713	683	685	699	693	696	725*

* This total includes five accidents outside of Canada for which no operational category has as yet been determined.

TABLE 2

NUMBER OF FATAL ACCIDENTS IN EACH YEAR, BY TYPE OF OPERATION

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Scheduled operations	2	0	0	0	1	0	0	0	2	1
Unit toll non-scheduled	1	2	0	2	1	3	1	3	1	3
Charter and contract	5	19	23	25	10	14	22	9	18	28
Fixed wing charter	**4**	**15**	**18**	**18**	**6**	**7**	**16**	**8**	**14**	**21**
Helicopter charter	**1**	**4**	**5**	**7**	**4**	**7**	**6**	**1**	**4**	**7**
Flying clubs	1	6	1	2	5	3	5	3	1	4
Specialty: RF & FT	5	8	8	8	13	9	12	7	12	13
Specialty: others	4	4	2	7	9	4	6	5	6	7
Fixed wing specialty	**6**	**10**	**9**	**12**	**17**	**11**	**13**	**10**	**17**	**17**
Helicopter specialty	**3**	**2**	**1**	**3**	**5**	**2**	**5**	**2**	**1**	**3**
State operations	0	1	0	2	0	1	1	0	1	1
Private operations	36	34	48	36	28	44	41	50	48	48
Commercial non-revenue	3	1	2	1	0	3	1	4	4	2
All operations	57	75	84	83	67	81	89	81	93	108*

* This total includes one fatal accident outside of Canada for which no operational category has as yet been determined.

TABLE 3

NUMBER OF FATALITIES IN EACH YEAR, BY TYPE OF OPERATION

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Scheduled operations	110	0	0	0	1	0	0	0	45	17
Unit toll non-scheduled	5	8	0	5	14	10	1	20	11	13
Charter and contract	10	52	46	56	19	55	52	25	51	74
Fixed wing charter	**9**	**44**	**36**	**39**	**14**	**43**	**36**	**24**	**44**	**62**
Helicopter charter	**1**	**8**	**10**	**17**	**5**	**12**	**16**	**1**	**7**	**12**
Flying clubs	2	12	1	7	10	6	7	5	1	10
Specialty: RF & FT	9	14	16	11	24	15	18	17	21	28
Specialty: others	5	10	4	15	15	6	14	7	9	13
Fixed wing specialty	**10**	**22**	**16**	**19**	**30**	**17**	**20**	**20**	**27**	**33**
Helicopter specialty	**4**	**2**	**4**	**7**	**9**	**4**	**12**	**4**	**3**	**8**
State operations	0	2	0	6	0	2	1	0	4	2
Private operations	65	63	86	48	84	69	84	96	97	86
Commercial non-revenue	14	1	2	2	0	8	1	7	8	4
All operations	220	162	155	150	167	171	178	177	247	247

TABLE 4

NUMBER OF ACCIDENTS AS A PERCENTAGE OF TOTAL ACCIDENTS, BY TYPE OF OPERATION

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Scheduled operations	0.6	0.7	0.5	0.4	0.3	0.3	0.3	0.1	0.4	0.6
Unit toll non-scheduled	1.3	1.8	1.8	1.7	0.6	1.5	1.1	0.9	1.6	1.4
Charter and contract	24.7	23.2	24.6	24.1	24.7	20.4	22.5	16.7	17.8	23.6
Fixed wing charter	**16.2**	**15.1**	**13.4**	**15.3**	**17.7**	**14.0**	**15.2**	**11.8**	**10.9**	**15.4**
Helicopter charter	**8.5**	**8.1**	**11.2**	**8.8**	**7.0**	**6.4**	**7.3**	**4.9**	**6.9**	**8.1**
Flying clubs	3.9	5.0	3.3	4.2	3.1	3.2	4.0	3.9	3.6	4.4
Specialty: RF & FT	11.0	11.4	13.2	12.2	15.1	13.4	12.2	11.8	11.8	12.1
Specialty: others	4.2	7.7	2.9	5.9	5.7	4.4	4.7	3.9	5.9	5.5
Fixed wing specialty	**12.7**	**15.1**	**13.8**	**15.3**	**16.7**	**15.0**	**12.7**	**12.7**	**14.1**	**14.9**
Helicopter specialty	**2.5**	**4.0**	**2.3**	**2.8**	**4.1**	**2.8**	**4.1**	**3.0**	**3.6**	**2.8**
State operations	0.6	1.3	1.1	0.8	0.4	0.6	1.3	1.3	0.7	1.0
Private operations	51.4	45.8	50.3	49.2	48.0	52.8	50.8	56.6	53.4	47.0
Commercial non-revenue	2.3	3.1	2.3	1.4	2.0	3.4	3.1	4.8	4.7	3.7

TABLE 5

ACCIDENT RATE (NUMBER OF ACCIDENTS PER 100,000 HOURS) BY TYPE OF OPERATION

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Scheduled operations	0.7	0.9	0.7	0.6	0.4	0.4	0.4	0.2	0.6	0.8
Unit toll non-scheduled	8.7	12.8	11.0	10.0	3.1	7.4	5.7	3.8	6.7	5.6
Charter and contract	19.1	17.4	19.6	21.0	19.7	15.6	17.5	11.7	11.6	14.1
Fixed wing charter	**16.5**	**16.0**	**15.0**	**18.7**	**19.9**	**15.8**	**17.5**	**11.8**	**9.9**	
Helicopter charter	**27.2**	**20.8**	**30.7**	**26.6**	**19.4**	**15.3**	**17.5**	**11.4**	**16.0**	
Flying clubs	15.0	19.3	14.5	17.7	12.0	10.6	14.6	13.9	13.0	
Specialty: RF & FT	13.4	13.3	17.5	15.5	16.3	14.1	12.4	10.8	11.2	12.4
Specialty: others	21.3	38.8	19.0	48.7	41.7	31.6	32.0	23.9	32.4	19.7
Fixed wing specialty	**13.3**	**14.9**	**16.0**	**17.6**	**16.5**	**14.4**	**11.8**	**10.7**	**12.1**	
Helicopter specialty	**44.0**	**83.0**	**50.7**	**68.4**	**77.7**	**62.7**	**94.5**	**45.8**	**50.9**	
State operations	3.9	8.8	8.0	6.7	3.3	4.0	8.5	7.3	4.0	6.0
Private operations	37.6	34.3	39.1	44.1	41.0	40.6	36.2	37.3	33.4	
Commercial non-revenue	18.4	28.4	20.7	12.8	17.6	29.1	29.2	42.3	38.4	29.5
All operations	19.3	19.3	20.8	22.3	20.3	19.2	19.5	18.8	17.7	17.7

TABLE 6

ACCIDENTS INVOLVING COMMERCIALLY REGISTERED AIRPLANES OVER 12,500 POUNDS - 1976 TO 1979

Number of accidents -- 54

Number of accidents with verified factors -- 46

Factor table for accidents involving commercially registered aeroplanes -- over 12,500 pounds. Entries are number of accidents, or percentages of accidents on which those factors appeared at least once.

	Human	Machine	Environment
Number of accidents	41	22	26
Percentage of accidents (46)	89%	48%	57%

TABLE 7

ACCIDENTS INVOLVING AIRPLANES

12,500 POUNDS AND UNDER, AND AIRPLANES OVER 12,500 POUNDS

1970 TO 1979, COMMERCIALLY REGISTERED AIRPLANES

	12,500 and Under	Over 12,500
1970	174	13
1971	189	17
1972	184	17
1973	236	22
1974	242	24
1975	220	20
1976	224	9
1977	189	14
1978	193	19
1979	248	12
TOTAL	2,099	167

TABLE 8

ACCIDENTS INVOLVING COMMERCIALLY REGISTERED AIRPLANES 12,500 POUNDS AND UNDER, 1976 TO 1979

Number of accidents -- 854
Number of accidents with verified factors -- 764

Factors table for accidents involving commercially registered aeroplanes -- 12,500 and under. Entries are number of accidents, or percentages of accidents on which those factors appeared at least once.

	Human	Machine	Environment
Number of accidents	703	219	416
Percentage of Accidents (764)	92%	29%	54%

TABLE 9

FATAL ACCIDENT RATE (NUMBER OF FATAL ACCIDENTS PER 100,000 HOURS) BY TYPE OF OPERATION

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Scheduled operations	0.5	0	0	0	0.2	0	0	0	0.4	0.2
Unit toll non-scheduled	1.2	2.6	0	1.7	0.8	2.2	0.7	1.9	0.6	1.7
Charter and contract	0.7	2.6	3.0	3.0	1.2	1.6	2.5	0.9	1.7	2.3
Fixed wing charter	**0.8**	**2.9**	**3.3**	**3.1**	**1.0**	**1.2**	**2.6**	**1.2**	**1.8**	
Helicopter charter	**0.6**	**1.9**	**2.2**	**3.0**	**1.6**	**2.4**	**2.1**	**0.3**	**1.3**	
Flying clubs	0.7	4.3	0.7	1.2	2.9	1.4	2.6	1.5	0.5	
Specialty: RF & FT	1.2	1.7	1.7	1.4	2.1	1.4	1.8	0.9	1.6	1.8
Specialty: others	3.9	3.7	2.1	8.1	9.6	4.2	5.8	4.4	4.7	3.4
Fixed wing specialty	**1.2**	**1.8**	**1.7**	**1.9**	**2.5**	**1.5**	**1.7**	**1.2**	**2.1**	
Helicopter specialty	**10.2**	**7.5**	**3.6**	**10.3**	**13.9**	**6.6**	**16.3**	**4.4**	**2.0**	
State operations	0	1.3	0	2.2	0	0	0.9	0	0.8	0.9
Private operations	5.1	4.7	6.1	4.5	3.5	4.9	4.2	4.8	4.3	
Commercial non-revenue	4.6	1.7	3.0	1.3	0	3.8	1.3	5.1	4.7	2.2
All operations	2.1	2.7	2.8	2.6	2.0	2.3	2.5	2.2	2.4	2.6

TABLE 10

NUMBER OF HOURS FLOWN (THOUSANDS OF HOURS) BY TYPE OF OPERATION

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Scheduled operations	429	435	436	477	510	519	502	479	490	528
Unit toll non-scheduled	80	78	100	120	129	136	141	157	164	179
Charter and contract	671	724	771	821	857	895	897	993	1066	1213
Fixed wing charter	**509**	**513**	**546**	**584**	**609**	**608**	**606**	**695**	**765**	
Helicopter charter	**162**	**211**	**225**	**237**	**247**	**288**	**291**	**298**	**301**	
Flying clubs	133	140	138	170	174	208	192	194	193	
Specialty: RF & FT	424	468	463	562	633	652	684	758	732	712
Specialty: others	103	108	95	86	93	95	103	113	126	203
Fixed wing specialty	**498**	**550**	**530**	**619**	**690**	**717**	**757**	**825**	**810**	
Helicopter speciality	**30**	**27**	**28**	**29**	**36**	**30**	**31**	**46**	**49**	
State operations	76	80	87	90	91	100	105	124	125	116
Private operations	710	725	791	796	801	891	982	1050	1115	
Commercial non-revenue	65	60	68	78	79	79	75	78	86	91
All operations	2693	2818	2949	3201	3366	3575	3681	3946	4097	

TABLE 11

NUMBER OF HOURS FLOWN AS A PERCENTAGE OF TOTAL HOURS FLOWN, BY TYPE OF OPERATION

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Scheduled operations	15.9	15.5	14.8	14.9	15.1	14.5	14.0	13.0	12.5	12.9
Unit toll non-scheduled	3.0	2.8	3.4	3.8	3.8	3.8	3.9	4.3	4.2	4.4
Charter and contract	24.9	25.7	26.1	25.6	25.4	25.0	25.1	26.9	27.1	29.7
Fixed wing charter	**18.9**	**18.2**	**18.5**	**18.3**	**18.1**	**17.0**	**16.9**	**18.8**	**19.5**	
Helicopter charter	**6.0**	**7.5**	**7.6**	**7.4**	**7.3**	**8.0**	**8.1**	**8.1**	**7.6**	
Flying clubs	5.0	5.0	4.7	5.3	5.2	5.8	5.2	4.9	4.8	
Specialty: RF & FT	15.8	16.6	15.7	17.6	18.8	18.2	19.1	20.6	18.6	17.4
Specialty: others	3.8	3.8	3.2	2.7	2.8	2.7	2.9	3.1	3.2	5.0
Fixed wing specialty	**18.5**	**19.5**	**18.0**	**19.3**	**20.5**	**20.0**	**21.1**	**22.4**	**20.6**	
Helicopter specialty	**1.1**	**0.9**	**0.9**	**0.9**	**1.1**	**0.8**	**0.9**	**1.2**	**1.2**	
State operations	2.8	2.8	3.0	2.8	2.7	2.8	2.9	3.4	3.2	2.8
Private operations	26.4	25.7	26.8	24.9	23.8	24.9	26.7	26.7	27.3	
Commercial non-revenue	2.4	2.1	2.3	2.4	2.4	2.2	2.1	2.1	2.2	

TABLE 12

ACCIDENT AND ACTIVITY DATA FOR ALL OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	519	544	614	713	683	685	699	693	696	725
Fatal Accidents	57	75	84	83	67	81	89	81	93	108
Fatalities	220	162	155	150	167	171	178	177	247	247
Hours Flown	2,692,948	2,818,201	2,948,543	3,200,679	3,366,341	3,575,017	3,581,897	3,688,013	3,931,941	4,086,073
Accidents per 100,000 Hours	19.27	19.30	20.82	22.28	20.29	19.16	19.51	18.79	17.70	17.74
Fatal Accidents per 100,000 Hours	2.12	2.66	2.85	2.59	1.99	2.27	2.48	2.20	2.37	2.64

TABLE 13

ACCIDENTS AND ACTIVITY DATA FOR SCHEDULED OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	3	4	3	3	2	2	2	1	3	4
Fatal Accidents	2	0	0	0	1	0	0	0	2	1
Fatalities	110	0	0	0	1	0	0	0	45	17
% of Total Accidents in Year	0.6	0.7	0.5	0.4	0.3	0.3	0.3	0.1	0.4	0.6
Hours flown	428,973	434,675	435,874	477,082	509,625	518,975	502,313	479,104	489,687	527,938
% of Total Hours in Year	15.9	15.5	14.8	14.9	15.1	14.5	14.0	13.0	12.5	12.9
Accidents per 100,000 Hours	0.70	0.92	0.69	0.63	0.39	0.39	0.40	0.21	0.61	0.76
Fatal Accidents per 100,000 Hours	0.46	0	0	0	0.19	0	0	0	0.41	0.19

TABLE 14

ACCIDENTS AND ACTIVITY DATA FOR UNIT TOLL NON-SCHEDULED OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	7	10	11	12	4	10	8	6	11	10
Fatal Accidents	1	2	0	2	1	3	1	3	1	3
Fatalities	5	8	0	5	14	10	1	20	11	13
% of Total Accidents in Year	1.3	1.8	1.8	1.7	0.6	1.5	1.1	0.9	1.6	1.4
Hours Flown	80,120	78,201	99,860	120,487	128,846	135,823	140,870	157,454	163,732	179,465
% of Total Hours in Year	3.0	2.8	3.4	3.8	3.8	3.8	3.9	4.3	4.2	4.4
Accidents per 100,000 Hours	8.74	12.79	11.02	9.96	3.10	7.36	5.68	3.81	6.72	5.57
Fatal Accidents per 100,000 Hours	1.25	2.56	0.00	1.66	0.78	2.21	0.71	1.91	0.61	1.67

TABLE 15

ACCIDENT AND ACTIVITY DATA FOR CHARTER AND CONTRACT OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	128	126	151	172	169	140	157	116	124	171
Fatal Accidents	5	19	23	25	10	14	22	9	18	28
Fatalities	10	52	46	56	19	55	52	25	51	74
% of Total Accidents in Year	24.7	23.2	24.6	24.1	24.7	20.4	22.5	16.7	17.8	23.6
Hours Flown	571,496	724,460	770,809	820,972	856,516	895,211	897,467	992,794	1,066,111	1,213,496
% of Total Hours in Year	24.9	25.7	26.1	25.6	25.4	25.0	25.1	26.9	27.1	29.7
Accidents per 100,000 Hours	19.06	17.39	19.59	20.95	19.73	15.64	17.49	11.68	11.63	14.09
Fatal Accidents per100,000 Hours	0.74	2.62	2.98	3.05	1.17	1.56	2.45	0.91	1.69	2.31

TABLE 16

ACCIDENT AND ACTIVITY DATA FOR FIXED WING CHARTER OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	84	82	82	109	121	96	106	82	76	112
Fatal Accidents	4	15	18	18	6	7	16	8	14	21
Fatalities	9	44	36	39	14	43	36	24	44	62
% of Total Accidents in Year	16.2	15.1	13.4	15.3	17.7	14.0	15.2	11.8	10.9	15.4
Hours Flown	509,495	513,146	545,910	584,211	609,385	607,502	606,214	695,179	765,418	
% of Total Hours in Year	18.9	18.2	18.5	18.3	18.1	17.0	16.9	18.8	19.5	
Accidents per 100,000 Hours	16.49	15.98	15.02	18.66	19.86	15.80	17.49	11.80	9.93	
Fatal Accidents per 100,000 Hours	0.79	2.92	3.30	3.08	0.98	1.15	2.64	1.15	1.83	

TABLE 17

ACCIDENT AND ACTIVITY DATA FOR HELICOPTER CHARTER OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	44	44	69	63	48	44	51	34	48	59
Fatal Accidents	1	4	5	7	4	7	6	1	4	7
Fatalities	1	8	10	17	5	12	16	1	7	12
% of Total Accidents in Year	8.5	8.1	11.2	8.8	7.0	6.4	7.3	4.9	6.9	8.1
Hours Flown	162,001	211,314	224,899	236,761	247,131	287,709	291,253	297,615	300,693	
% of Total Hours in Year	6.0	7.5	7.6	7.4	7.3	8.0	8.1	8.1	7.6	
Accidents per 100,000 Hours	27.16	20.82	30.68	26.61	19.42	15.29	17.51	11.42	15.96	
Fatal Accidents per 100,000 Hours	0.62	1.89	2.22	2.96	1.62	2.43	2.06	0.34	1.33	

TABLE 18

ACCIDENT AND ACTIVITY DATA FOR COMMERCIAL NON-REVENUE OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	12	17	14	10	14	23	22	33	33	27
Fatal Accidents	3	1	2	1	0	3	1	4	4	2
Fatalities	14	1	2	2	0	8	1	7	8	4
% of Total Accidents in Year	2.3	3.1	2.3	1.4	2.0	3.4	3.1	4.8	4.7	3.7
Hours Flown	65,320	59,756	67,657	78,303	79,472	79,087	75,215	78,073	85,907	91,460
% of Total Hours in Year	2.4	2.1	2.3	2.4	2.4	2.2	2.1	2.1	2.2	2.2
Accidents per 100,000 Hours	18.37	28.44	20.69	12.77	17.61	29.08	29.25	42.27	38.41	29.52
Fatal Accidents per 100,000 Hours	4.59	1.67	2.96	1.28	0.00	3.79	1.33	5.12	4.66	2.19

TABLE 19

ACCIDENT AND ACTIVITY DATA FOR SPECIALTY: RF & FT OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	57	62	81	87	103	92	85	82	82	88
Fatal Accidents	5	8	8	8	13	9	12	7	12	13
Fatalities	9	14	16	11	24	15	18	17	21	28
% of Total Accidents in Year	11.0	11.4	13.2	12.2	15.1	13.4	12.2	11.8	11.8	12.1
Hours Flown	424,280	467,856	463,449	561,869	633,007	652,278	684,009	758,313	732,307	712,139
% of Total Hours in Year	15.8	16.6	15.7	17.6	18.8	18.2	19.1	20.6	18.6	17.4
Accidents per 100,000 Hours	13.43	13.25	17.48	15.48	16.27	14.10	12.43	10.81	11.20	12.36
Fatal Accidents per 100,000 Hours	1.18	1.71	1.73	1.42	2.05	1.38	1.75	0.92	1.64	1.83

TABLE 20

ACCIDENT AND ACTIVITY DATA FOR SPECIALTY: OTHERS OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	22	42	18	42	39	30	33	27	41	40
Fatal Accidents	4	4	2	7	9	4	6	5	6	7
Fatalities	5	10	4	15	15	6	14	7	9	13
% of Total Accidents in Year	4.2	7.7	2.9	5.9	5.7	4.4	4.7	3.9	5.9	5.5
Hours Flown	103,261	108,204	94,799	86,319	93,445	94,791	103,280	112,782	126,429	203,209
% of Total Hours in Year	3.8	3.8	3.2	2.7	2.8	2.7	2.9	3.1	3.2	5.0
Accidents per 100,000 Hours	21.31	38.82	18.99	48.66	41.74	31.65	31.95	23.94	32.43	19.68
Fatal Accidents per 100,000 Hours	3.87	3.70	2.11	8.11	9.63	4.22	5.81	4.43	4.75	3.44

TABLE 21

ACCIDENT AND ACTIVITY DATA FOR FIXED WING SPECIALTY OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	66	82	85	109	114	103	89	88	98	108
Fatal Accidents	6	10	9	12	17	11	13	10	17	17
Fatalities	10	22	16	19	30	17	20	20	27	33
% of Total Accidents in Year	12.7	15.1	13.8	15.3	16.7	15.0	12.7	12.7	14.1	14.9
Hours Flown	497,991	549,559	530,628	618,945	690,409	716,760	756,607	825,292	809.652	
% of Total Hours in Year	18.5	19.5	18.0	19.3	20.5	20.0	21.1	22.4	20.6	
Accidents per 100,000 Hours	13.25	14.92	16.02	17.61	16.51	14.37	11.76	10.66	12.10	
Fatal Accidents per 100,000 Hours	1.20	1.82	1.70	1.94	2.46	1.53	1.72	1.21	2.10	

TABLE 22

ACCIDENT AND ACTIVITY DATA FOR HELICOPTER SPECIALTY OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	13	22	14	20	28	19	29	21	25	20
Fatal Accidents	3	2	1	3	5	2	5	2	1	3
Fatalities	4	2	4	7	9	4	12	4	3	8
% of Total Accidents in Year	2.5	4.0	2.3	2.8	4.1	2.8	4.1	3.0	3.6	2.8
Hours Flown	29,550	26,501	27,620	29,243	36,043	30,309	30,682	45,803	49,084	
% of Total Hours in Year	1.1	0.9	0.9	0.9	1.1	0.8	0.9	1.2	1.2	
Accidents per 100,000 Hours	43.99	83.02	50.69	68.39	77.68	62.69	94.52	45.84	50.93	
Fatal Accidents per 100,000 Hours	10.15	7.55	3.62	10.26	13.87	6.60	16.30	4.37	2.04	

TABLE 23

ACCIDENT AND ACTIVITY DATA FOR STATE OPERATIONS

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Total Accidents	3	7	7	6	3	4	9	9	5	7
Fatal Accidents	0	1	0	2	0	1	1	0	1	1
Fatalities	0	2	0	6	0	2	1	0	4	2
% of Total Accidents in Year	0.6	1.3	1.1	0.8	0.4	0.6	1.3	1.3	0.7	1.0
Hours Flown	76,000	80,000	87,341	89,596	90,628	100,265	105,264	123,634	125,167	116,453
% of Total Hours in Year	2.8	2.8	3.0	2.8	2.7	2.8	2.9	3.4	3.2	2.8
Accidents per 100,000 Hours	3.95	8.75	8.01	6.70	3.31	3.99	8.55	7.28	3.99	6.01
Fatal Accidents per 100,000 Hours	0.00	1.25	0.00	2.23	0.00	0.00	0.95	0.00	0.80	0.86

TABLE 24

ACCIDENT AND ACTIVITY DATA FOR PRIVATE OPERATIONS, 1970-1978

	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total Accidents	274	249	309	351	328	362	356	380	363
Fatal Accidents	36	34	48	36	24	44	39	50	46
Fatalities	68	63	89	48	85	70	85	94	95
% of Total Accidents in Year	51.7	45.9	50.3	49.2	48.0	52.8	51.1	56.0	52.8
Hours Flown	710,000	725,000	791,218	796,444	800,510	890,614	981,902	1,049,948	1,115,149
% of Total Hours in Year	26.4	25.7	26.8	24.9	23.8	24.9	26.7	26.7	27.3
Accidents per 100,000 Hours	38.59	34.34	39.05	44.07	40.97	40.65	36.26	36.19	32.55
Fatal Accidents per 100,000 Hours	5.07	4.69	6.07	4.52	3.00	4.94	3.97	4.76	4.13

The following charts, with explanatory notes, also provide a statistical analysis of aircraft accidents in Canada:

Chart A - The number of accidents in Canada by year vs. the number of aircraft on the Canadian Aircraft Register

Chart B - Canadian aircraft accident totals, nationally vs. flying activity

Chart C - Canadian aircraft accident totals, nationally vs. type of operation

Chart D - Canadian aircraft accident rates, nationally vs. type of operation in relation to 100,000 hours

Chart E - Canadian aircraft accidents, national injuries totals

Chart F - Canadian fatal aircraft accident rate, nationally vs. type of operation for 100,000 hours

Chart G - Canadian rotorcraft accident rates, nationally vs. class of operation for 100,000 hours

Chart H - Canadian accidents per 100,000 hours for each region and nationally, excluding scheduled operations

Chart I - Canadian fatal accidents per 100,000 hours for each region and nationally, excluding scheduled operations

Chart J - Fatalities and injuries per 100,000 flying hours by region and nationally, excluding scheduled operations

Chart K - Factor table for fatal and non-fatal accidents, 1976 to 1978 in percentages

Chart L - Percentage of accidents occurring for each phase of flight (Totals, 1976-78), regionally and nationally, excluding scheduled operations.

CHART A

CANADIAN AIRCRAFT ACCIDENT TOTALS

NATIONALLY VERSUS AIRCRAFT POPULATION

The chart depicts the number of accidents in Canada by year versus the number of aircraft on the Canadian Aircraft Register. The totals in red indicate the number of aircraft shown on the register while the green bars indicate the aircraft with valid certificates of airworthiness or flight permits. The yellow line indicating accidents are those accidents which occurred in Canada to Canadian registered aircraft. The red line is the additional foreign aircraft accidents that occurred in Canada in those years.

The yellow line shows that accidents to Canadian aircraft increased relative to the number of aircraft on the Canadian register until 1973 when the number of accidents per year levelled off. Research was carried out to attempt to identify the reason why the number of accidents stabilized. So far as can be determined only two factors were identified which could have influenced the number of accidents. One was that the Aviation Safety Bureau was formed in 1972 and commenced its promotional activities toward safety. The other was the introduction of three Air Navigation Orders ANO VII Nos. 2, 3, and 6 which relate to the commercial operation of large aircraft over 12,500 pounds, small aircraft under 12,500 pounds, and rotorcraft. If the trend had continued as it had previous to 1973, there would have been over 1,000 accidents in 1978 with the consequent loss of several tens of millions of dollars to the Canadian economy.

Canadian Aircraft Accident Totals Nationally versus Aircraft Population

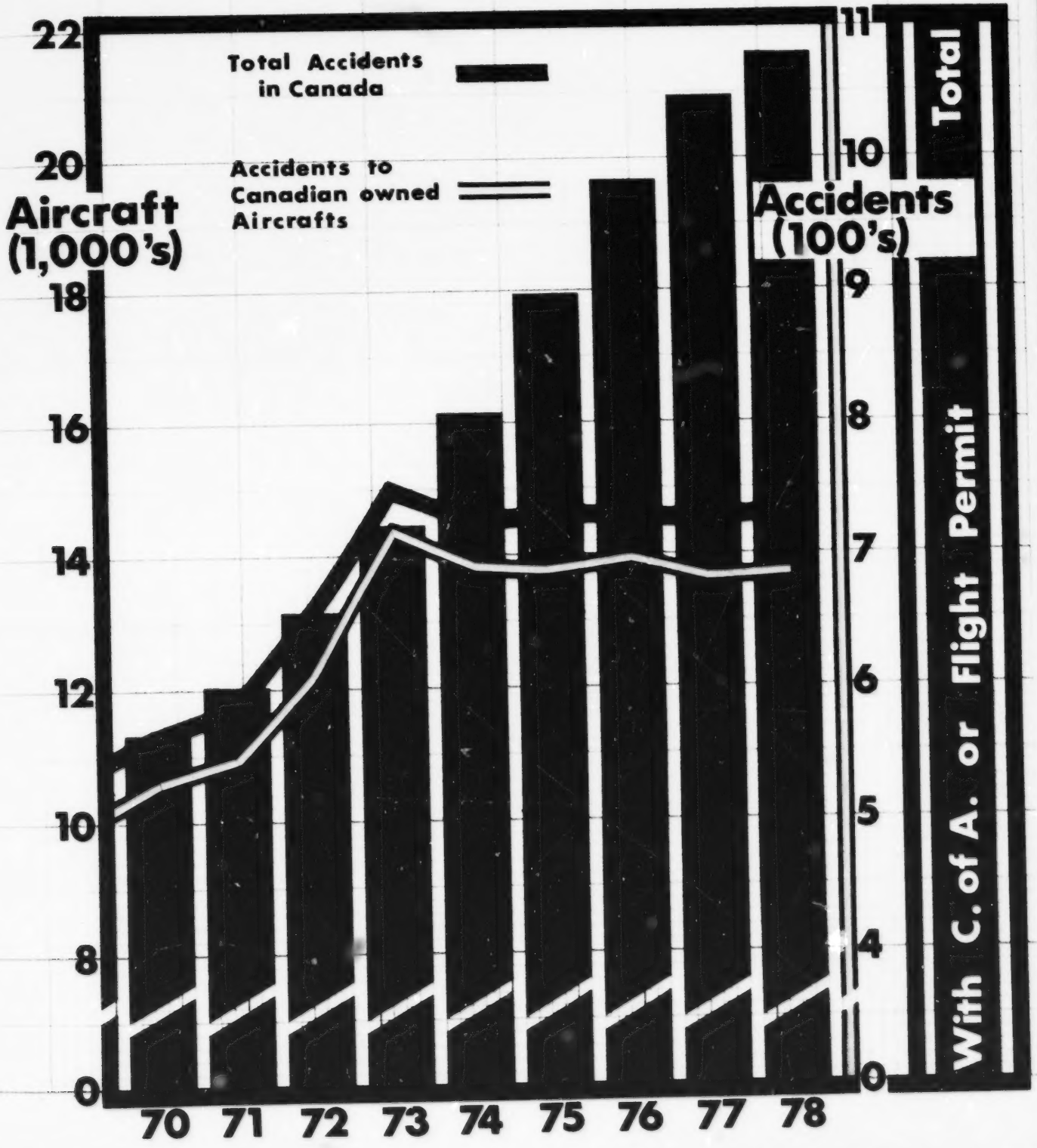


CHART B

CANADIAN AIRCRAFT ACCIDENT TOTALS

NATIONALLY VERSUS FLYING ACTIVITY

The blue bars indicate flying activity by millions of hours by Canadian registered aircraft. In the study to identify the reasons why the number of accidents had levelled off, there was some consideration given to the possibility that they had been affected by the fuel crisis in 1974. Although there was a slight reduction in the increase of activity in 1974, the trend line has been relatively consistent right up to 1978. Therefore, this influence was discounted.

Canadian Aircraft Accident Totals Nationally versus Flying Activity.

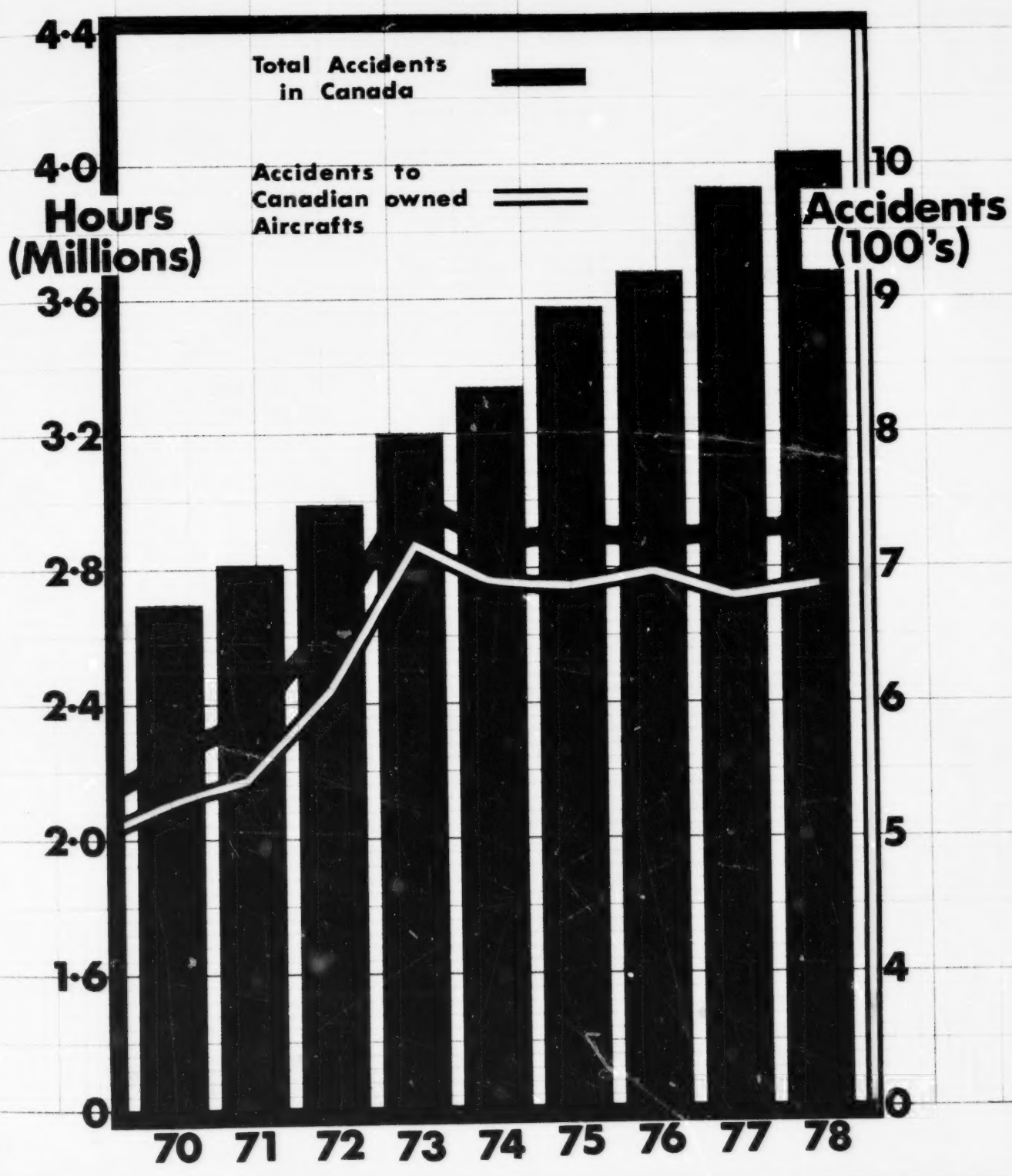


CHART C

CANADIAN AIRCRAFT ACCIDENT TOTALS

NATIONALLY VERSUS TYPE OF OPERATION

The chart indicates the number of accidents which occurred in various segments of the aviation industry. The blue indicates CTC Classes 1, 2, 3, 8 and 9-1 which are those carriers providing scheduled and non-scheduled unit toll service domestically and internationally. Non-revenue includes ferry and test flights and training by commercial operators plus state operations. Charter in yellow shows the number of accidents occurring to Class 4, and 9-4 charter both domestic and international. Green shows fixed wing speciality operations or Class 7. The blue indicates Class 4 and Class 7 rotary wing operations. The pink shows private operations which account for approximately half of the accidents each year while carrying out only 25% of the activity.

Canadian Aircraft Accident Totals Nationally versus Type of Operation.

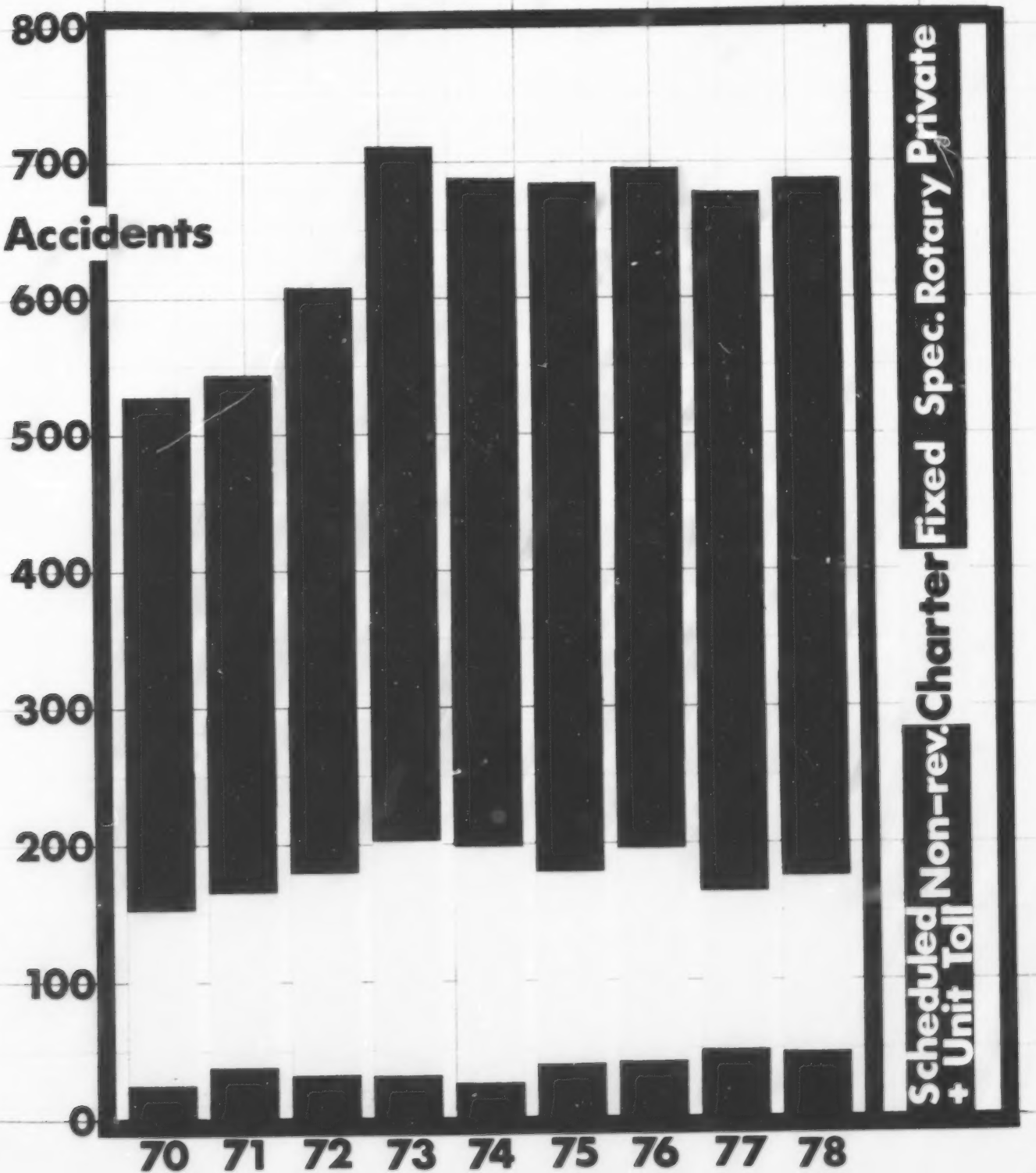


CHART D

CANADIAN AIRCRAFT ACCIDENT RATES
NATIONALLY VERSUS TYPE OF OPERATION

The chart indicates the number of accidents per 100,000 hours by type of operation. The black line shows the national accident rate for all operations. Since 1973 it has decreased from approximately 23 accidents per 100,000 hours to approximately 17 per 100,000 hours in 1978. Unit toll in blue shows a consistently low accident rate. Fixed wing speciality (green) charter (yellow) and private (pink) have consistently declined since 1973. Rotary wing operations show a down trend but have wide swings from year to year. Non-revenue operations are the only ones that have shown an up trend. This is being investigated further to attempt to identify the reasons for it.

Canadian Aircraft Accident Rates

Nationally versus Type of Operation.

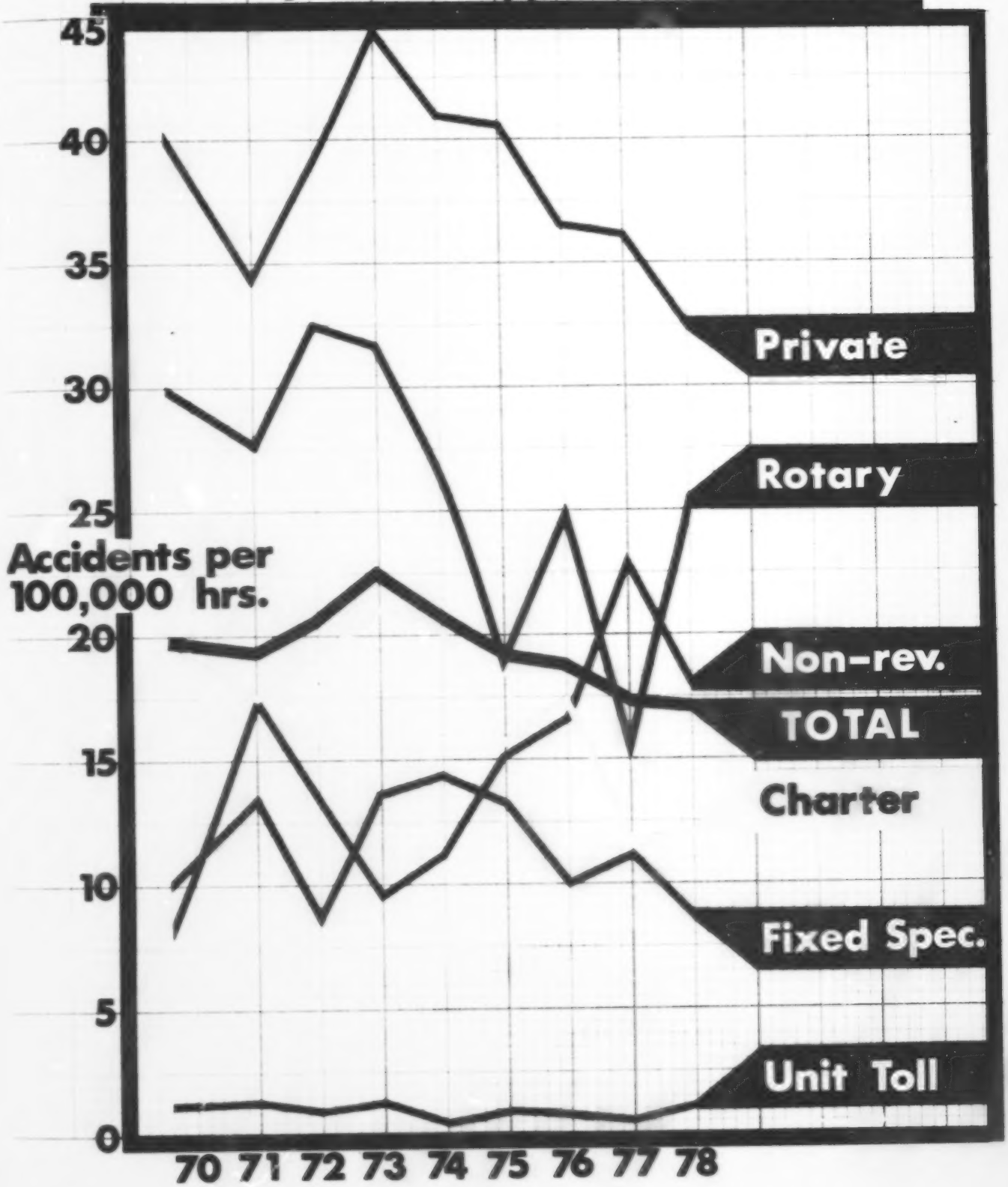


CHART E

CANADIAN AIRCRAFT ACCIDENTS

NATIONAL INJURIES TOTALS

As indicated on the chart, fatalities are shown in red, serious injuries are shown in yellow and minor injuries shown in green.

Fatalities, serious injuries and minor injuries have remained relatively constant with the exception of those years where there were accidents occurring to large aircraft such as TIW, the DC-8 crash at Toronto in 1970, PAB, the Panartic Electra crash at Rea Point in 1974, and PWC, the Pacific Western accident in 1978, and TLV, the DC-9 accident in Toronto in 1978.

Canadian Aircraft Accidents
National Injuries Totals.

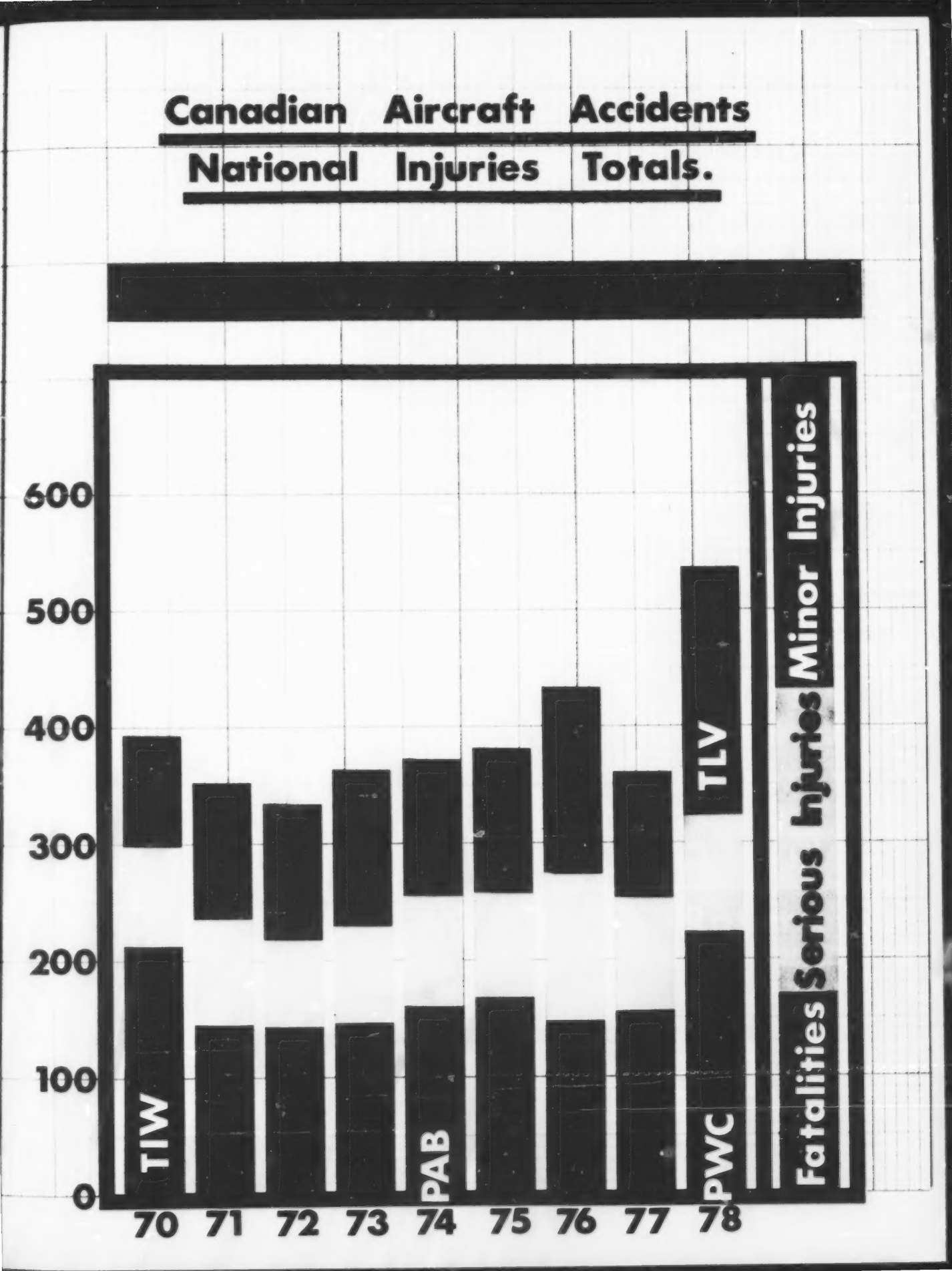


CHART F

CANADIAN FATAL AIRCRAFT ACCIDENT RATE

NATIONALLY VERSUS TYPE OF OPERATION

This chart shows the fatal accident rate per hundred thousand hours for each segment of the industry. The national rate is shown in black under total. Unit toll has been relatively consistent. Charter operations have shown a down trend. Private operations have been relatively the same although there are variations from year to year.

Canadian Fatal Aircraft Accident Rates Nationally versus Type of Operation.

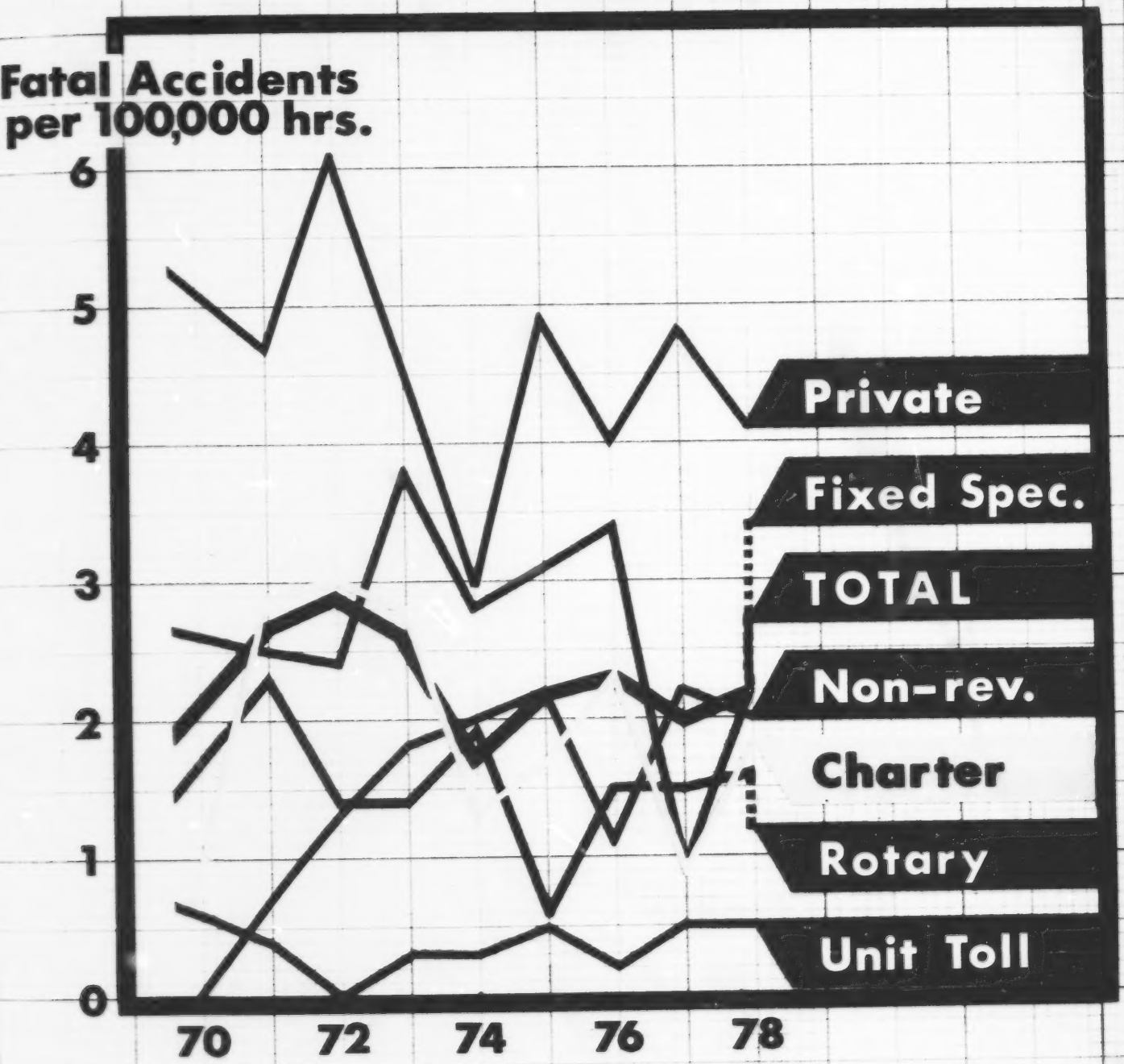


CHART G

CANADIAN ROTORCRAFT ACCIDENT RATES

NATIONALLY VERSUS CLASS OF OPERATION

The trend for all aircraft is shown in black while the trend for all rotary wing aircraft shown in green. Class 4 rotary wing operations shown in red have shown a consistent downward trend since 1972 - 1973 while Class 7 rotary wing has been consistently high. It is interesting to note that Class 4 rotary wing operations come under the Air Navigation Order Series VII, No. 6, while the Class 7 rotary wing operations do not. This would indicate that the introduction of the Air Navigation Order had some influence on rotorcraft operations. However, one must consider that Class 7 rotary operations are inherently less safe because of the type of work they are carrying out, such as pipe line control, construction, lumbering, crop spraying etc.

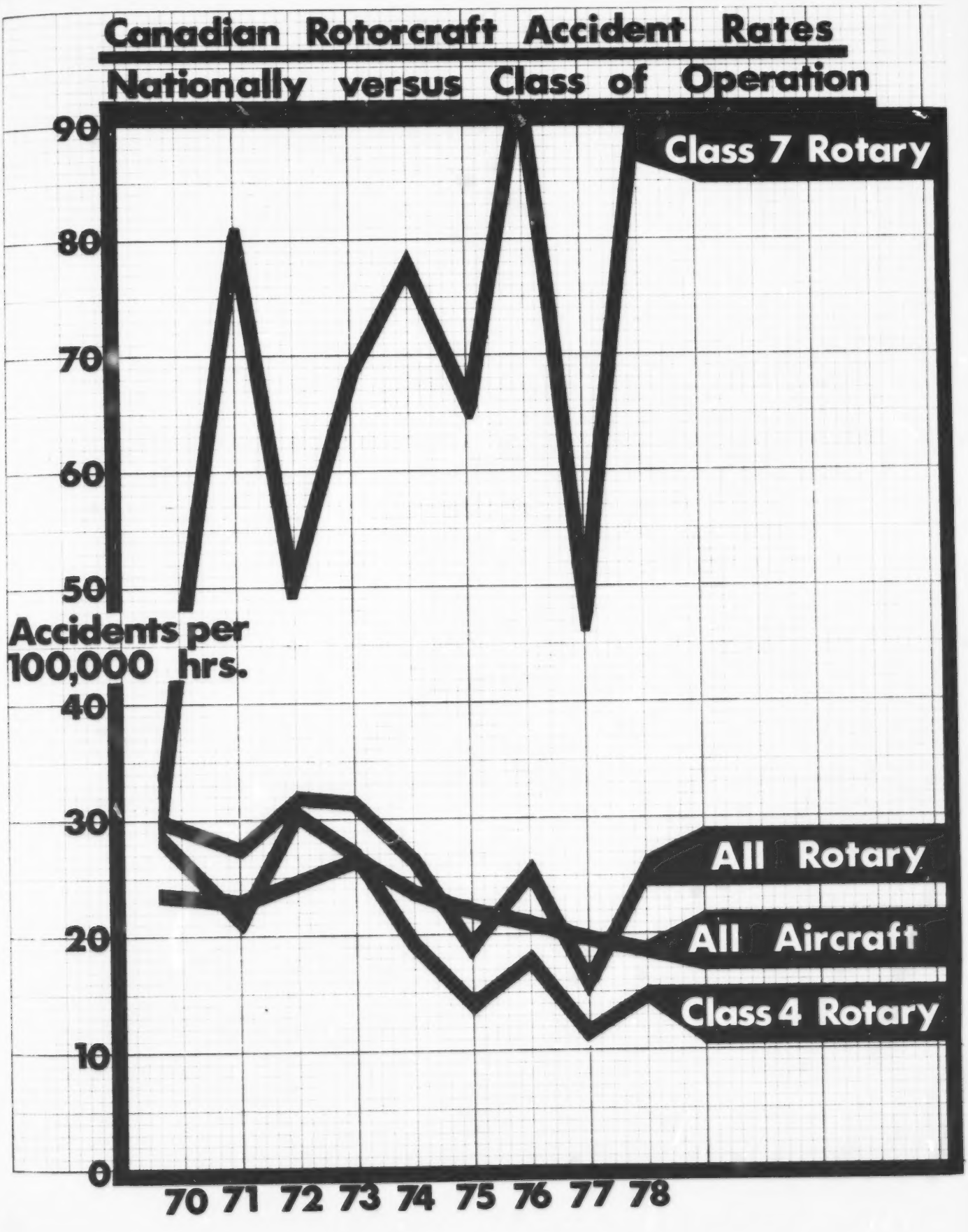

Canadian Rotorcraft Accident Rates
Nationally versus Class of Operation
Class 7 Rotary
All Rotary
All Aircraft
Class 4 Rotary
Accidents per 100,000 hrs.
90
80
70
60
50
40
30
20
10
0
70 71 72 73 74 75 76 77 78

CHART H

CANADIAN ACCIDENTS PER 100,000 HOURS FOR EACH REGION AND NATIONALLY

This chart excludes scheduled operations such as Air Canada, Canadian Pacific and the regional carriers since all their activities would be charged to the region in which their main headquarters is located and would bias the data.

Another point to consider when examining the chart is that the activity data by region may not be completely accurate since there is some difficulty at the moment in breaking out the activity data completely. Therefore, the rates may not be completely accurate. The rates for each region are compared against the national rate in black.

Canadian Accidents per 100,000 hrs for each Region & Nationally

Excluding Scheduled Operations

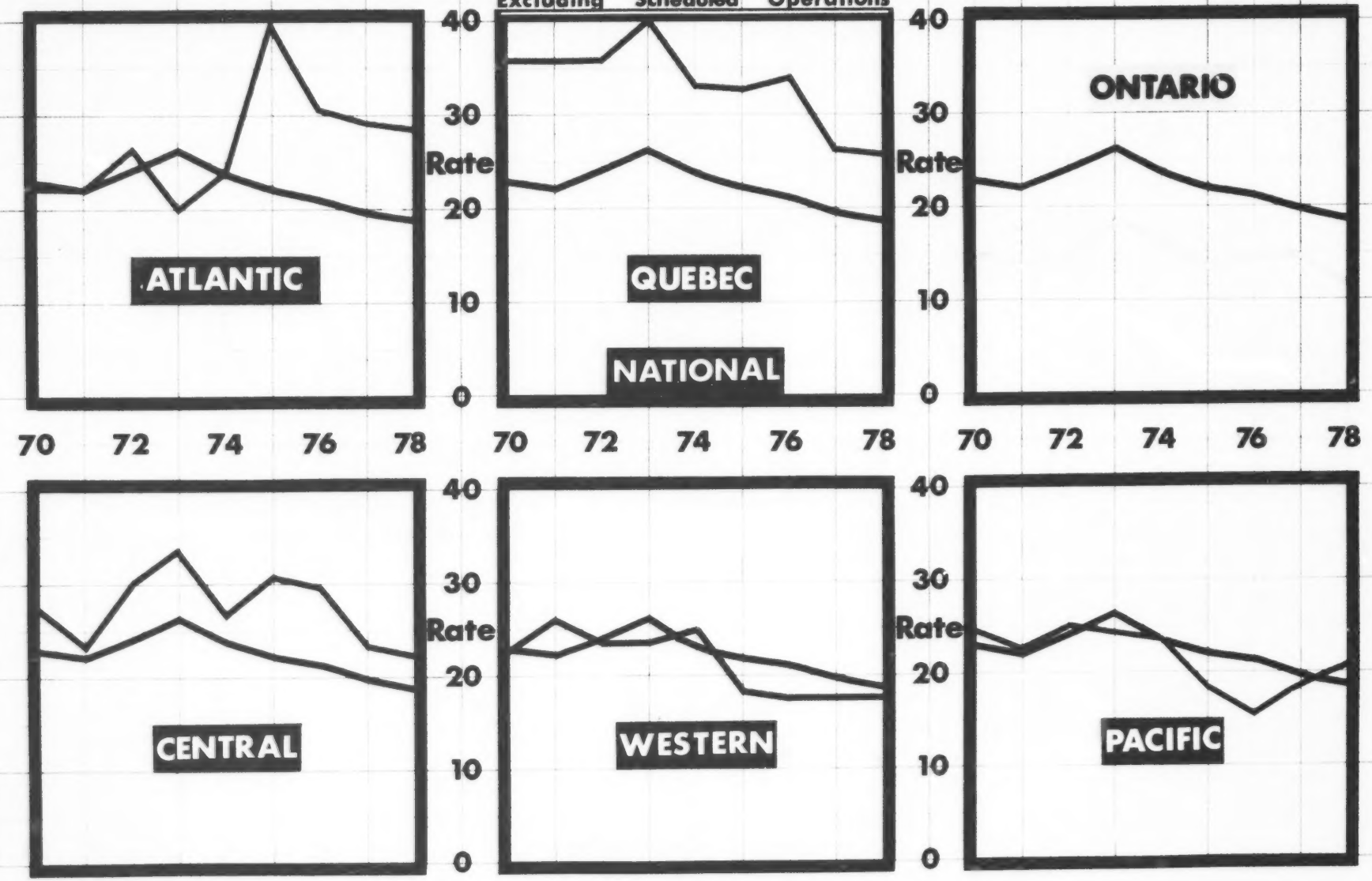


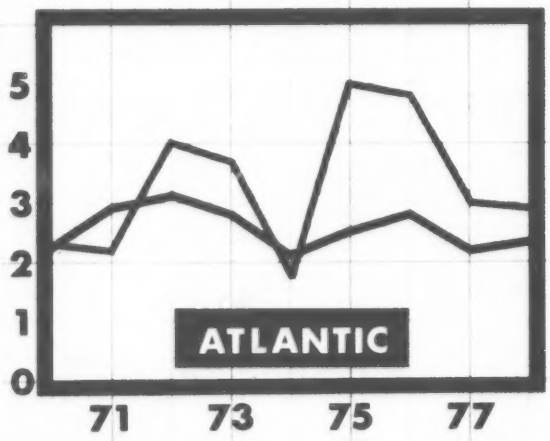
CHART I

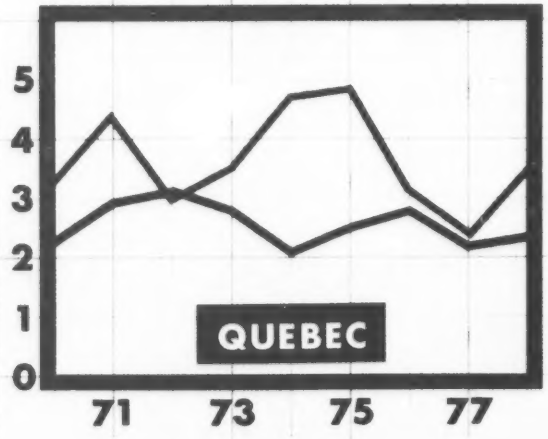
CANADIAN FATAL ACCIDENTS PER 100,000 HOURS FOR EACH REGION AND NATIONALLY

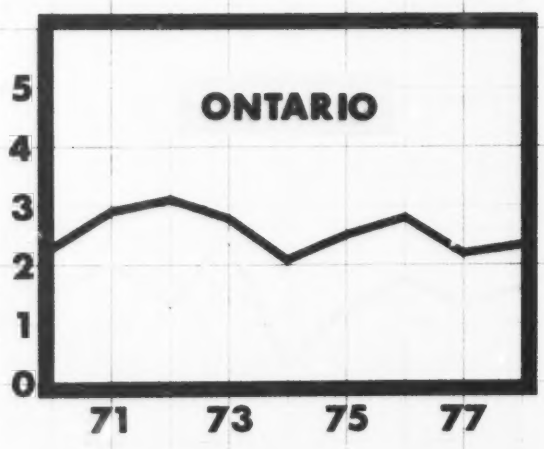
This chart also excludes scheduled carriers as in the previous chart. The national fatal accident rate is shown in black. A point to be noted when comparing the Pacific Region with the previous chart is that while the accident rate in the Pacific Region is consistent with the national average, the fatal accident rate is much higher, which would indicate that accidents in the Pacific Region tend to be more catastrophic.

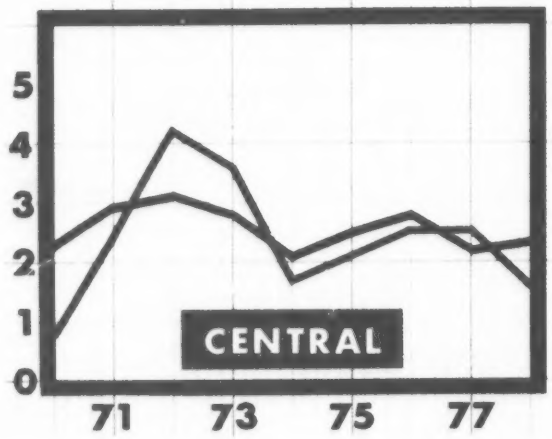
Canadian Fatal Accidents per 100,000 hrs. for each Region & Nationally

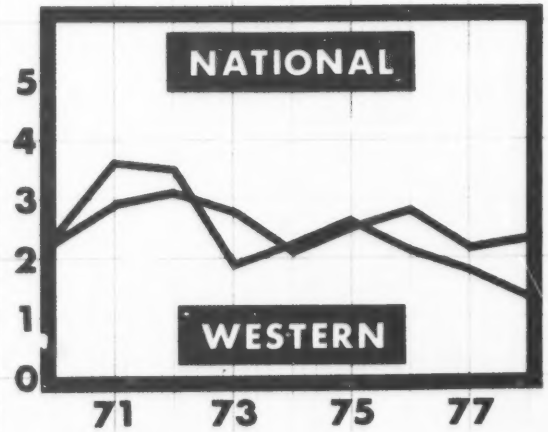
Excluding Scheduled Operations











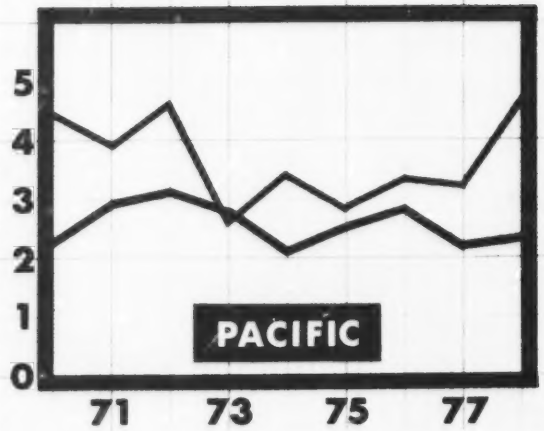


CHART J

FATALITIES AND INJURIES PER 100,000 FLYING HOURS

BY REGION AND NATIONALLY

This chart also excludes scheduled operations. Fatalities, serious injuries and minor injuries are shown in red, yellow and green respectively per region. The national rate is shown in black on each graph.

Fatalities & Injuries per 100,000 flying hours by Region & Nationally.

Excluding Scheduled Operations

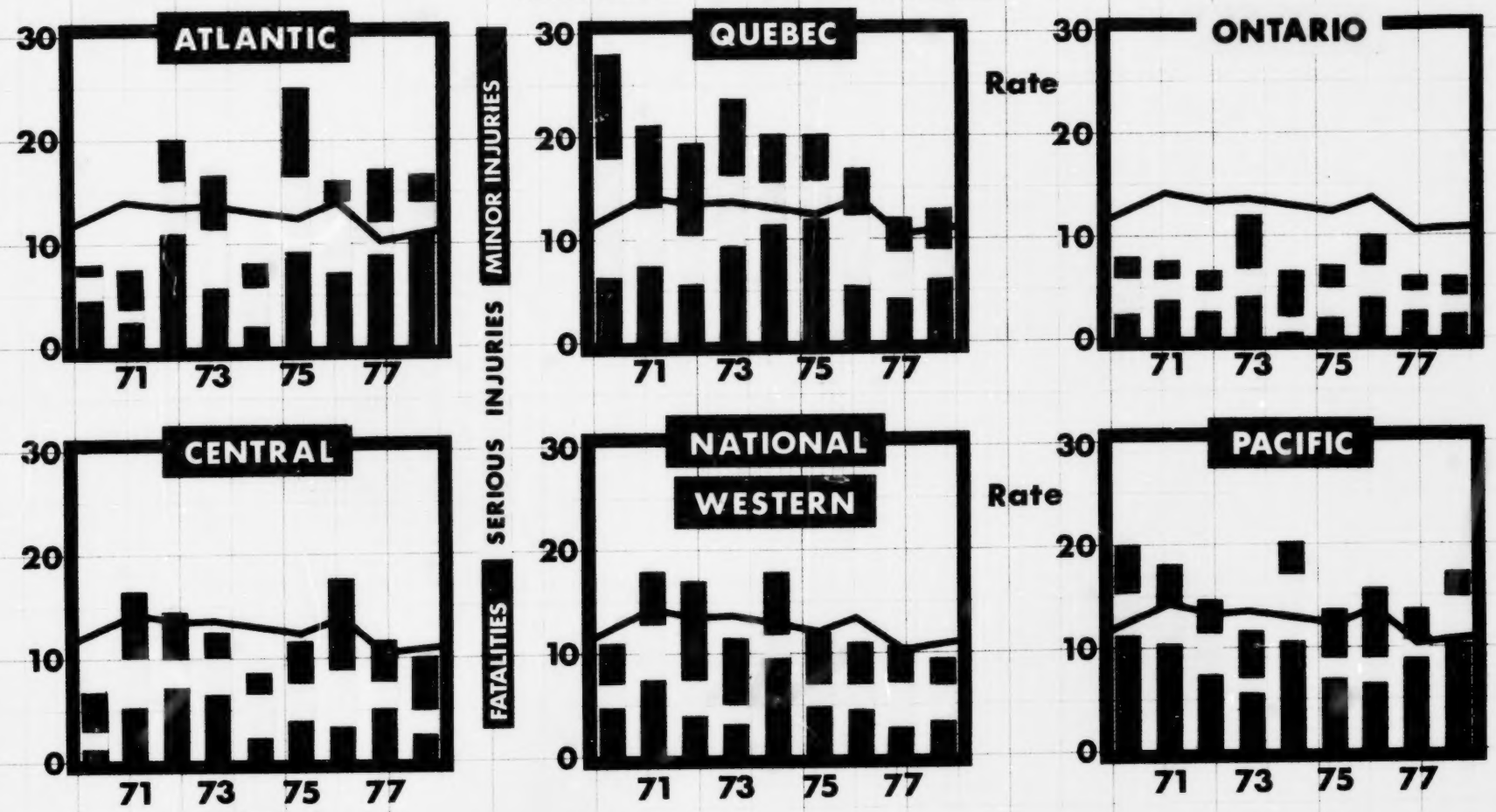


CHART K

FACTOR TABLE FOR FATAL AND NON-FATAL ACCIDENTS

1976 TO 1978 IN PERCENTAGES

For each accident factors are attributed which would indicate the cause of the accident. In some accidents more than one factor is given since all three factors could be present in a given accident. The chart would indicate that nationally in fatal accidents human factors were involved 87% of the time, machine was involved 13% of the time, and the environment was involved 59% of the time. As can be seen from the chart the factors are fairly consistent across the country with the exception of the high machine factors allocated by Central and Western Region to fatal accidents. This is an anomaly which will be investigated further.

FACTOR TABLE FOR FATAL & NON-FATAL ACCIDENTS 1976 TO 1978 IN %

REGION	FATAL ACCIDENTS			NON-FATAL ACCIDENTS		
	HUMAN	MACHINE	ENVIRON.	HUMAN	MACHINE	ENVIRON.
ATLANTIC	100	9	64	90	30	47
QUEBEC	81	6	56	94	26	59
ONTARIO	84	9	63	91	29	52
CENTRAL	86	20	54	90	32	48
WESTERN	90	30	47	94	30	54
PACIFIC	88	5	73	91	30	57
NATIONAL	87	13	59	92	30	53

CHART L

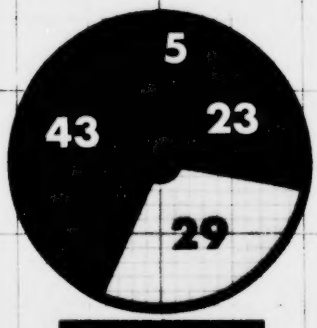
PERCENTAGE OF ACCIDENTS OCCURRING FOR EACH PHASE OF FLIGHT (TOTALS, 1976-1978)

The chart indicates both regionally and nationally the phase of flight in which the accidents occurred. The green segment of the chart shows accidents that occurred while taxiing. The blue shows the take-off phase. The yellow shows the enroute phase and the pink shows the landing phase. Nationally the take-off and landing phases account for 66% of the accidents. It is interesting to note that in the Pacific Region 41% of the accidents occur in the enroute phase which might indicate the reason for the higher fatality rate in the Pacific Region.

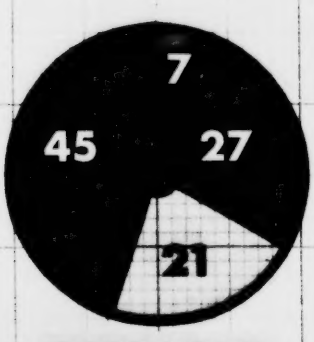
Percentage of Accidents Occuring for each Phase of Flight (Totals, 1976–1978)

(Regionally & Nationally; excludes Skeds)

ATLANTIC



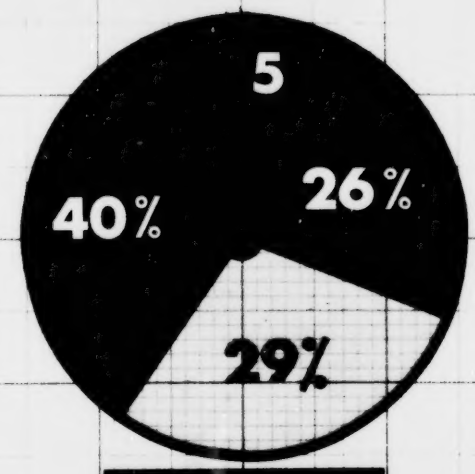
QUEBEC



ONTARIO

Taxiing

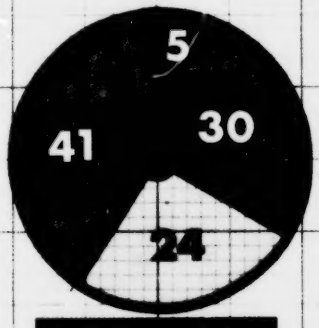
En-route



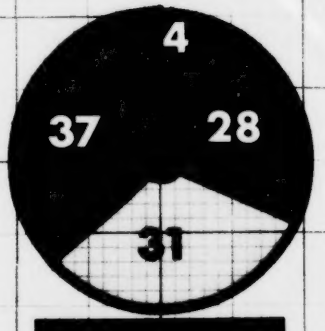
Take-off

Landing

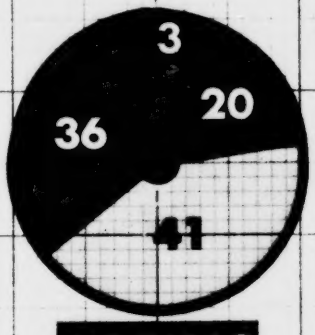
NATIONAL



CENTRAL



WESTERN



PACIFIC

STATISTICS OF AIRCRAFT ACCIDENTS IN PRIVATE AVIATION 1976 TO 1978 IN THE FOLLOWING EUROPEAN COUNTRIES:

AUSTRIA	MALTA
BELGIUM	NETHERLANDS
DENMARK	NORWAY
FINLAND	PORTUGAL
FRANCE	SPAIN
GERMANY	SWEDEN
GREECE	SWITZERLAND
ICELAND	TURKEY
IRELAND	UNITED KINGDOM
LUXEMBOURG	YUGOSLAVIA

STATISTICS OF ACCIDENTS IN PRIVATE AVIATION

ACCIDENTS AND THEIR CONSEQUENCES

AEROPLANES

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Aircraft on Register	7,720	9,150	9,854	10,348	11,294	12,562	13,579	14,449	15,424	15,502	16,353	18,481	20,426	21,928	19,741	20,327	22,674
Movements (thousands) (Estimate)	3,350	4,650	5,130	5,750	7,723	7,849	7,456	9,640	9,374	9,713	10,292	12,721	13,802	14,413	13,092	12,636	13,264
Hours Flown (thousands) (Estimate)	750	1,000	1,100	1,216	1,458	1,578	1,704	2,098	2,238	2,431	2,631	2,662	3,177	3,244	2,935	2,923	2,920
Accidents:																	
Without Casualties	453	451	613	569	595	591	583	794	791	781	761	666	691	645	531	575	566
With Casualties	187	182	184	268	208	199	217	236	214	223	251	285	301	296	348	349	385
TOTAL	640	633	797	837	803	790	800	1,030	1,005	1,004	1,012	951	992	941	879	924	951
Casualties:																	
Occupants - Killed	125	135	125	193	162	169	222	269	172	223	251	207	243	275	256	229	253
Occupants - Injured	162	154	218	201	177	211	204	180	220	240	215	257	275	226	242	202	227
Occupants - Unhurt	624	715	1,123	1,037	1,092	1,019	1,089	949	868	1,044	1,069	1,362	1,422	1,401	1,415	1,463	1,942
TOTAL	911	1,004	1,466	1,431	1,431	1,399	1,515	1,398	1,260	1,507	1,535	1,826	1,940	1,902	1,913	1,894	2,424
Others - Killed	2	3	2	5	3	1	2	-	5	2	2	-	1	2	2	1	2
Others - Injured	6	7	11	10	15	7	6	9	6	6	11	9	8	6	5	7	3
Damage to Aircraft																	
Destroyed	149	139	161	176	170	181	201	221	240	226	234	211	231	219	227	192	214
Substantial Damage	210	212	228	248	271	271	294	336	482	479	480	484	501	464	473	498	484
Minor or No Damage	286	285	414	413	362	352	309	485	298	308	318	257	260	260	186	238	258

STATISTICS OF ACCIDENTS IN PRIVATE AVIATION

CASUAL FACTORS AEROPLANES

TOTAL ACCIDENTS

PERCENTAGE CASUAL FACTORS

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Personnel																	
In the Aircraft - Pilot	57.0	58.4	59.9	58.8	64.3	58.9	58.5	60.4	57.9	59.8	61.1	62.0	61.0	58.8	51.2	54.1	59.8
In the Aircraft - Other	1.5	2.1	2.6	2.3	1.2	4.1	0.8	0.7	-	1.9	0.4	1.0	1.1	1.3	2.0	1.4	1.7
On the Ground	4.5	6.5	5.5	3.3	3.3	3.0	4.2	3.3	2.9	3.6	2.8	3.1	2.7	2.9	3.9	3.6	2.0
Aircraft																	
Airframe	0.5	1.0	0.3	1.1	0.8	0.5	2.2	1.7	1.8	1.2	1.7	0.7	0.5	0.6	1.9	2.8	2.1
Power Plant	14.5	10.5	9.1	11.4	8.8	9.2	10.0	9.2	12.1	8.3	9.2	6.3	6.9	8.1	8.6	8.9	7.0
Aircraft Systems Including Under Carriage	4.8	4.8	7.8	7.1	5.5	5.7	5.5	4.3	6.5	5.5	7.4	5.7	6.6	5.6	5.6	4.6	4.7
Aircraft Instruments and Equipment	1.1	0.8	0.8	0.9	0.1	0.2	0.3	1.1	0.4	0.4	0.7	0.6	0.6	1.4	0.2	0.8	0.3
Others																	
Meteorological Conditions	10.0	8.5	7.2	7.7	8.7	10.4	12.7	12.2	10.4	11.2	10.5	8.0	10.2	10.1	12.2	11.1	9.1
Aerodromes	4.0	3.0	5.5	5.3	5.7	3.9	4.1	5.1	5.1	3.8	3.2	2.2	4.5	4.9	4.3	4.3	2.6
Airway Facilities	4.0	3.0	5.5	5.3	5.7	3.9	4.1	5.1	5.1	3.8	3.2	-	-	-	-	-	-
Terrain	4.0	3.0	5.5	5.3	5.7	3.9	4.1	5.1	5.1	3.8	3.2	-	2.0	2.4	2.3	2.4	3.2
Miscellaneous	2.1	4.4	1.3	2.1	1.6	4.1	1.7	2.0	2.9	4.3	3.0	10.4	3.9	3.9	7.7	6.1	7.5

ACCIDENTS WITH CASUALTIES

PERCENTAGE CASUAL FACTORS

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Personnel																	
In the Aircraft - Pilot	66.0	64.0	70.0	64.4	66.0	59.5	61 3	60.6	60.6	61.6	64.2	62.1	65.9	61.1	53.1	56.6	58.1
In the Aircraft - Other	2.0	2.0	1.9	1.8	2.0	0.7	0.6	1.7	-	3.0	1.3	1.5	0.8	0.8	2.1	1.7	2.7
On the Ground	4.0	7.0	4.9	3.3	2.6	1.8	2.6	1.3	2.8	3.1	3.2	3.7	1.4	3.4	3.6	2.9	1.7
Aircraft																	
Airframe	-	1.5	0.8	1.8	1.6	1.6	3.3	1.3	1.8	1.9	1.1	0.8	0.8	-	1.2	2.0	1.7
Power Plant	12.8	7.5	10.1	11.6	10.5	13.6	8.5	9.3	10.6	8.1	7.9	5.5	6.5	7.2	9.5	7.2	5.6
Aircraft Systems Including Under Carriage	1.5	0.8	-	-	0.3	0.3	0.3	0.4	1.4	1.5	-	0.4	0.8	-	0.5	0.3	0.5
Aircraft Instruments and Equipment	-	-	0.8	0.6	0.3	0.7	0.3	1.8	-	1.2	-	0.6	0.8	2.1	0.2	0.9	0.2
Others																	
Meteorological Conditions	7.5	9.0	7.2	10.8	8.9	14.9	19.0	18.1	14.9	12.7	15.1	11.8	14.4	14.8	15.0	15.9	11.5
Aerodromes	1.0	1.5	2.5	1.5	3.3	1.0	2.3	1.8	2.3	1.9	1.1	0.4	2.4	2.8	1.9	1.7	1.5
Airway Facilities	1.0	1.5	2.5	1.5	3.3	1.0	2.3	1.8	2.3	1.9	1.1	-	-	-	-	-	-
Terrain	1.0	1.5	2.5	1.5	3.3	1.0	2.3	1.8	2.3	1.9	1.1	1.2	2.9	3.4	3.1	4.0	5.9
Miscellaneous	5.2	6.7	1.8	4.2	4.5	5.9	1.3	3.7	5.6	5.0	6.1	12.0	3.3	4.4	9.8	6.6	10.5

ANALYSIS

It is to be observed that the statistics hereinbefore set forth are confined to accidents within the definitions set forth above. They do not include "near misses" or other incidents which, but for pure chance, could have resulted in accidents.

A very brief analysis of the statistics discloses that the total number of accidents increased rather dramatically between the years 1970 to 1973, but bore a ratio to the increased number of aircraft and increased flying activity in those years. Between the years 1974 to 1978 the number of the accidents levelled off somewhat below that which had taken place in 1973, notwithstanding the increase in the number of aircraft and flying activity in those years. However, in 1979 there were 725 accidents, the highest number in the ten-year period included in the statistical analysis.

On a regional basis and subject to the qualifications noted in the charts, the Atlantic and Quebec Regions had the highest accident rate per 100,000 hours of flying and Ontario had the lowest.

It is further to be noted that in 1978 there were 93 fatal accidents, and in 1979, 108, the highest totals in the ten-year analysis. Thus, approximately one out of every seven accidents is a fatal one. In each of those years there were 247 fatalities, again the highest number in the period of the study. With respect to fatal accidents per 100,000 hours and excluding scheduled operations, the fatal accident rate and the number of fatalities is the highest in the Pacific Region, although the accident rate in that region is consistent with the national average. Accidents in the Pacific Region, therefore, tend to be more catastrophic.

The carriers, which provide scheduled and non-scheduled unit toll services, nationally, and internationally, have the lowest accident rate for 100,000 flying hours. In Canada, the term "private operations" refers to that flying done in privately registered aircraft. Private operations account for roughly one-half of the accidents each year, although representing approximately one-quarter of the total flying activity.

There is often more than one contributing factor to an accident, but in fatal accidents nationally the human factor (error attributed to pilot or crew) is a contributing factor in, approximately, 87% of the accidents, machine 13% and environment 59%. In non-fatal accidents the human factor is a contributing cause in, approximately, 92%, the machine factor in 30% and the environment factor in 53%.

On a national average, approximately, 40% of accidents occur on landing, 26% on take-off, 5% on taxiing and 29% enroute. In the Pacific Region, however, 41% occur enroute.

The latest 1979 statistics from the National Transportation Safety Board reveal that whereas air carriers in 1979 in the United States had higher accident totals and accident rates than in previous years, general aviation in the United States registered lower totals across the board and record low rates. Total accidents and fatal accidents decreased by as much as 17% and both total and fatal accident rates whether measured by flight hours or miles flown were down by close to 18%. In the United States the term "general aviation" refers to all non-airline flying.

In Europe, the accident statistics reveal a safety picture comparable to Canada in the field of private aviation. For these twenty European states, referred to at page 92, there are 22,674 aircraft on register. In Canada, on March 31, 1980, there were 22,698 aircraft on the Civil Aircraft Register of which 72% were privately owned. Table 24, which sets out the accident and activity data for private operations in Canada, establishes that in 1978 there were 32.55 accidents per 100,000 hours. The European statistics for that year show that there were 951 accidents, with 2,920,000 hours flown, giving 32.56 accidents per 100,000 hours, a figure that is virtually identical to Canada.

COMPARATIVE RANKING

The difficulty in attempting to compare Canada's safety record with that of other countries is aptly illustrated by an issue which arose during the course of the evidence and which had been raised in Parliament before the appointment of the Commission. The issue was the accuracy of a comparative analysis carried out by J. M. Ramsden in Flight International, a well-recognized British publication. The purport of this analysis was that Canada's ranking among major air transportation nations had dropped in recent years.

In the May 17, 1973 edition of Flight International J. M. Ramsden addressed himself to the question "Which countries have the safest airlines?" for the ten-year period 1963-72. He examined the record of the following 15 countries:

Australia	Italy
Belgium	Japan
Brazil	Netherlands
Canada	Scandinavia
France	United Kingdom
Germany (W)	United States of America
India	

Country A (An unnamed Middle East country).

Country B (An unnamed South American country).

Their record was examined with respect to the following four criteria:

(1) number of fatal accidents per unit of total air transport production, measured in available capacity tonne-kilometers;

(2) number of fatal accidents per flight;

(3) number of fatalities per unit of total air transport production; and

(4) number of fatalities per flight.

The ranking of each country was obtained by combining each country's standing in respect of each criterion and obtaining the average. Canada ranked 8 out of 15. In respect to criterion two, its ranking was 7 out of 15.

A further comparison was carried out by Flight International for the period 1973-1978. The same 15 countries were used with the addition of three others (Columbia, Turkey and Venezuela). This comparison, using the same four criteria, showed that Canada's ranking had dropped as follows:

(a) four criteria combined, Canada ranked 11 out of 18;

(b) with respect to the criterion, fatal accidents per flight, Canada dropped from 7 out of 15, to 13 out of 18.

The findings for the 1973-1978 period were published in Flight International, October 21, 1978 and confirmed January 20, 1979.

Fundamental to the accuracy of the analysis are the statistics with respect to fatal crashes and activity expressed in number of flights. The articles acknowledge that the latter is based on an assumption as follows:

> "Our sources for these measurements have been the International Civil Aviation Organization (Icao) Digest of Statistics No. 225, Non-Scheduled Air Transport, and Icao Digest of Statistics 218B, Airline Traffic, Volume 2. The national totals of CTK produced by non-scheduled operators are not recorded by Icao, and so are assumed to equal the non-scheduled CTK of the scheduled operators. (This relationship is endorsed by the LTK (load tonne-km) graph on page 18 of Digest 225). CTK for 1977 are provisionally assumed to be the same percentage up on 1976 as the LTK traffic increases for each nation, as given on page 5 of the Icao Annual Report for 1977. CTK for 1978 are provisionally assumed for all countries to be 10 per cent up on 1977."

Mr. Pierre de Niverville, Chief, Aviation Safety Analysis, Aviation Safety Bureau, in a letter to Mr. Ramsden dated March 20, 1980, takes serious issue with this assumption. He points out that while this relationship may hold true as an average for most ICAO States, it grossly misrepresents the situation in Canada. He also pointed out that the activity for the period 1973-1978 for the airlines which generated the 16 fatal accidents is recorded for that period and estimated by Mr. Ramsden to include only 158,000 flights for all non-scheduled operators. In 1979 Canada's 133 Twin Otters alone accounted for that many flights.

To demonstrate the invalidity of Mr. Ramsden's figures, Mr. de Niverville examines the latter's figures with respect to fatal crashes per million flights. In the 1973 analysis Mr. Ramsden finds that Canada had 4.030 crashes per million flights. In the 1978 analysis Mr. Ramsden finds there were 6.170 fatal crashes per million flights or a 53% increase.

Mr. de Niverville then compares Canada's record for the two periods with reference to fatal crashes per 100,000 hours flown. He uses hours flown rather than flights because the data for flights is not available (in respect of non-scheduled operations by non-scheduled carriers). To test the validity of this criterion he states: "A comparison was done on the relationship between flights/hours flown for those segments of the activity for which we have information and there is no significant change in that ratio for the two periods." In other words, the relationship between flights and hours flown in the 1963-1972 period was the same as the relationship between those two figures in the 1973-1978 period.

He concludes his analysis as follows: "Using the actual fatal accidents incurred by all Canadian Commercial operators providing public transport of passengers and goods, the number of fatal accidents per 100,000 hours was 1.71 for 1963/72 and 1.20 for 1973/78, an improvement of 30%."

The actual figures are as follows:

Fatal Accident Rates - Revenue Public Transport Operations

Period	1963/72	1973/78
Fatal Accidents	166	112
Hours Flown	9,717,668	9,353,069
Fatal Accidents per 100,000 Hours	1.71	1.20

In view of the importance which Mr. Ramsden attached to the criterion "fatal crashes per million flights", the inaccuracy which Mr. de Niverville has pointed out in this comparison makes the Flight International comparative ranking questionable.

Nevertheless, the Aviation Safety Bureau's own analysis shows that relatively speaking Canada has declined in comparison with other major aviation nations and particularly in comparison with the United States. A document entitled "Comparing Canadian Accident Statistics with those of other Countries" was prepared by the Aviation Safety Bureau for submission to the Commission by way of rebuttal of the findings made by Mr. Ramsden in Flight International referred to above. This analysis points out that the activity data

used by Mr. Ramsden was the activity reported to ICAO by Canada's eight major carriers while the accidents used were for all Canadian air carriers offering unit toll and charter service or a total of 580. Referring to the Ramsden article the text of this document continues:

> "The measure of fatal accidents per million flights is the one which has the greatest influence on the final outcome of the ranking. Using this alone, because the sources of information for the other three measures are either suspect or not available, the Flight ranking for Canada was 7th in 1973 and 13th in 1978. Using the correct data these figures now become 6th in 1973 and 8th in 1978."
> (Emphasis added)

Table 2 of this document is set out hereunder:

TABLE 2: Accident Rates (accidents per 100,000 hours flown) for all types of flying.

Year	Canada	United States	United Kingdom
1970	19.6	14.7	8.8
1971	19.3	14.7	8.5
1972	20.6	12.9	13.2
1973	22.3	11.8	11.1
1974	20.5	12.0	13.9
1975	19.2	11.3	12.7
1976	18.9	10.5	12.5
1977	17.3	10.2	13.3

It is apparent that comparing the accident rates for all types of flying the rate of improvement from 1970 to 1977 is greater in the United States than in Canada. In the United States there was a decrease of 4.5 or 30.6%; while in Canada during the same period 2.3 or 11.7%.

COMMENT

By reason of the various classifications used, which are not always identical, and the different manner in which the various countries report, there is considerable difficulty in

making a true comparison, on the basis of statistics, of Canada's aviation safety record with those of other countries, or is there a universally accepted standard against which the safety record should be assessed.

I have already noted the particular problems which relate to flying in Canada by reason of its terrain, climate and its massive unpopulated areas, some of which problems do not arise in the United States. There is also the important factor of the extent of private aviation in Canada, which, in that respect, is comparable only to the United States. These problems not only place great strain on the aviation safety system, but create a financial drain on the resources available to improve it. There are legitimate economic barriers in the way which prevent the making of all the improvements to the aviation safety system which are available.

However, what has been shown by our own statistics as well as those from the United States is that the actual number of accidents can be reduced notwithstanding increased flying activity. This did occur for some years in Canada, but, as has been noted, the number of accidents and fatalities has increased significantly in the last two years, and this cannot be solely attributed to increased flying activity. The significant drop in the number of accidents in general aviation in the United States in the last few years is particularly noteworthy and is likely the result of legislative changes made in the United States relating to private aviation, which will be dealt with in subsequent reports.

The aviation safety system is concerned with the aircraft, the airway, the terminal, and people both licensed and unlicensed, to which latter group I have assigned the appellation "personnel". An aviation safety deficiency with respect to any of these may be a contributing cause of an accident, or may disclose a potential for a future accident.

If an improved safety record is to be achieved in this country, consideration must be given to each of the factors which may be a contributing cause of an accident. Many submissions were received as to how that objective can be achieved and will be dealt with when I report on the various other headings considered during the Inquiry.

The ultimate objective of any aviation safety system is the prevention of accidents. In order to do so, one must first establish why accidents occur, and it is one of the principal

functions of accident investigators to detect the cause or probable cause of aircraft accidents and to put into motion the steps necessary to prevent a recurrence.

The statistical information set forth above not only discloses the workload of the accident investigators, but is also of assistance in determining what the jurisdiction, composition and objective of an independent tribunal should be. The statistical information is also of significance in identifying aviation safety deficiencies which will be discussed in subsequent reports.

PART VI

AVIATION SAFETY BUREAU

The present responsibility for the investigation of accidents and incidents is that of the Aviation Safety Bureau. The Director of the Bureau is responsible to the Director General, Civil Aeronautics, a post created in 1971. The Bureau is composed of four divisions:

(1) AVIATION SAFETY INVESTIGATION (ASI)

The objective is to detect aviation system deficiencies and provide data. In meeting this objective, ASI provides direction in four areas:

(a) developing and maintaining a national system for the investigation of aircraft accidents and incidents;

(b) investigating selected aircraft accidents and incidents;

(c) preparing aircraft accident and incident reports;

(d) developing new investigation and investigator training techniques.

(2) AVIATION SAFETY ANALYSIS (ASA)

The assigned functions of which are as follows:

(a) directs the development and establishment of a program to define aviation system deficiencies by analysing aircraft accident, aircraft incident and aviation hazard data from all sources;

(b) directs the development and establishment of an aviation safety deficiency notification program;

(c) directs the preparation of aviation safety analysis project reports;

(d) directs the development of new analytical techniques.

(3) AVIATION SAFETY PROMOTION (ASP)

The assigned functions of which are as follows:

(a) develops and maintains national aviation safety information and motivation programs;

(b) develops and maintains a national system for the functional control and support of, Regional Aviation Safety Officers;

(c) develops new media and training techniques.

(4) AVIATION SAFETY ENGINEERING (ASE)

It provides material failure analysis service to the Accident Safety Investigation Division as well as other divisions of the Department such as the Airworthiness Division.

Assisting the Bureau, but not part of it, is the Civil Aviation Medicine Division, which is a branch of the Department of Health and Welfare, and assists with the medical and human factor investigation of civil aircraft accidents.

The complement of the accident investigators within ASI are set forth hereunder:

Headquarters	13*
Atlantic	4
Quebec	8
Ontario	10
Central	7
Western	9
Pacific	7
TOTAL	58

(NOTE: *Not all positions are presently filled)

PART VII

AIRCRAFT ACCIDENT REVIEW BOARD

In 1976 an Aircraft Accident Review Board was formed with the appointment of three professionals from industry and the research field as the board members. The procedures currently in effect are set forth hereunder

"The following is a general outline which may be altered to suit individual cases:

1. Notification of an Accident
The Board Chairman, Board Members, or an Officer of the Aviation Safety Investigation (ASI) Division will notify the others of the occurrence of an accident that might be considered 'Major' or one of 'high public interest or sensitivity'.

2. Investigation
The Board Chairman and/or other available Board Members will discuss with the appropriate officers in the ASI Division what is known of the accident as the investigation proceeds. The Chief of the ASI Division will ensure that all important documents concerned with the accident are brought to the Board's attention.

3. Draft Report
When the ASI Division has completed the draft report a copy will be given to each Board Member, along with such other information that may be appropriate, including any safety deficiencies that have been identified.

4. Decision to Review
A Board Member or Chief of the ASI Division may consider that the draft report is to be reviewed formally by the Board.

1. If the Board decides against this, the Chief of the ASI Division will be notified by letter.

2. If the Board decides to review the draft report a mutually acceptable date for the review will be established.

5. Review Arrangements
The Board will confirm the time and place for the review and advise the Chief of the ASI Division accordingly. The Board will also notify him of any specialist personnel who should attend the meeting.

6. Board Convenes
The Investigator-in-Charge or his alternate will brief the Board on the circumstances of the accident.

7. Discussion of circumstances
The Board will review the draft report, the analysis and any other data, with members of the ASI Division and any other specialists who may be called, to determine changes or any further investigations that may be necessary.

8. Preliminary Review
The Board and ASI Division will work as necessary toward completeness and consensus. Items 7 and 8 will be repeated until agreement is reached or irreconcilable differences clarified and recorded. The resulting report will be the Conditional Draft Report. The Board will set a date for final review allowing in each case a realistic time for involved party response.

9. Involved Parties
The Board, in consultation with the ASI Division, will establish in each case a list of those persons it has determined to be involved parties. Other persons not so determined may apply for the status of involved party.

In determining whether or not a person may be considered an involved party, the Board will consider whether or not his involvement is material to the primary purpose of the review which is the review of the investigation of the cause of the accident. The Board will not allow involvement merely for the purpose of obtaining evidence on which to base a subsequent action in a Court of Justice.

The owner and/or charterer and the crew members directly involved in the accident or their next of kin shall be considered involved parties. The aircraft or aircraft parts manufacturers or aircraft maintenance companies shall also be made involved parties where the Board considers that their product or service bears a relation to the cause of the accident.

In addition the Board may give the status of involved party to persons whose conduct may be criticized or who may directly be affected by eventual findings of the Board.

The Canadian Air Transport Administration shall in all cases be considered an involved party. Other elements of the Department of Transport may also be considered involved parties by the Board where their involvement would relate to the cause of the accident.

10. Circulation to Involved Parties
The Conditional Draft Report shall be distributed by the ASI Division to the involved parties with a request that they send their comments and any new or additional evidence, if any, to the ASI Division within a stipulated period.

11. Hearings of Involved Parties
Upon request, the Board may decide to hear specific involved parties where it is of the opinion, according to the principles of natural justice, that such hearing would be necessary or helpful in determining the cause of the accident or where the Board is of the opinion that such specific involved parties' interests may adversely be affected by the Report. Such hearing shall be conducted by the Board on an informal basis.

12. Final Review

The ASI Division will present the revised Draft Report along with the comments from the involved parties to the Board for final review. In considering the comments, the Board shall determine primarily their relevance to the cause of the accident and to the Report. At the conclusion of the review the Board will advise the involved parties of the disposition of their representations.

13. Final Report

(a) Whether or not the Board agrees with the final draft report it will:

1. Notify the Chief of the ASI Division of the Board's decision.

2. Supply the Division with a summary of any Board comments. These will be included on a separate page in the final report.

3. Notify the Chief of the ASI Division of its agreement that the report may be published.

4. Send the report to the Minister.

(b) If the Board does not agree with the report it will:

1. Outline its views to the Director General, Civil Aeronautics, the Director, Aviation Safety Bureau, and others at the Board's discretion.

2. Include its findings in a report to the Minister which may include a recommendation for a public enquiry.

14. Publication of Final Report

(a) The Chief of the ASI Division will:

1. Prepare the report in final form including the Board's comments.

2. Publish the report.

3. Distribute it to all interested parties.

(b) The Board will consult with the Director General, Public Affairs on the preparation of a press release and authorize its issue.

15. Safety Deficiencies

The Board, the ASI Division, and other Transport Canada Offices as required, shall identify safety deficiencies arising from the final accident report and forward them to the Director, Aviation Safety Bureau, who will report to the Board on progress of action(s) undertaken.

16. Annual Report to the Minister

On April 1st of each year the Board will:

1. Prepare a summary of the Board's activities for the previous fiscal year.

2. Submit the report to the Minister."

It is to be observed that the accident investigation report, as published, is the report of the ASI Division, and where the Board has not agreed with the report, the report must include the Board's comments of disapproval.

PART VIII

ANALYSIS OF THE AVIATION SAFETY BUREAU

INTRODUCTION

The creation of the Aircraft Accident Review Board with its very able members was a step in the right direction, but it is an internal administrative board without statutory authority. Although with the establishment of the Aircraft Accident Review Board, an effort has been made to give the Aviation Safety Bureau a functional independence, it is, nevertheless, structurally an integral part of CATA which within Transport Canada is also the regulatory authority for aviation in Canada.

During the course of an investigation of an accident or incident, an investigator might discover one or more of the following factors which may have contributed to the accident:

(a) inadequate regulations or the absence of regulations;
(b) certification of an aircraft which is not airworthy;
(c) lack of enforcement;
(d) deficiency in the licensing of personnel;
(e) deficiency in the air traffic control system or in the aeradio system;
(f) inadequate airport facilities;
(g) management inaction with respect to potential safety hazards as well as many other matters.

A finding with respect to any of those factors and any proposals to have the problems rectified may place the investigator in the position of criticizing his employer and/or his fellow employees. Since the investigator is dependent on the employer for his livelihood as well as by reason of the natural inclination to protect one's fellow employees, the investigator is placed in a position where his interest and duty may conflict. Furthermore, in a case where the Crown is a potential defendant in pending litigation, the investigator may be suspect and viewed by some as seeking to support the Crown's position, or turning a blind eye to those factors which place the Crown in jeopardy.

There cannot help but be a feeling of uneasiness when it is realized that one branch of the Air Administration is investigating areas of responsibilities which are those of the regulatory authority of which the investigator is a part. Their findings, therefore, are often suspect even in cases where no improper influences were brought to bear.

The Aviation Safety Bureau itself recognized the appearance of a potential conflict of interest in the brief submitted, wherein it is stated:

> "4. To gain and hold a reputation for objectivity and forthrightness, a safety specialist must not only possess those attributes, but must appear to have them. It is evident from correspondence that the public, marginally informed at best about the status of TC safety specialists, become confused when safety specialists are observed in non-safety roles. The confusion leads to the suspicion that safety specialists are really enforcement inspectors, TC affirmations to the contrary notwithstanding. Under these circumstances, charges of 'whitewash' or 'cover-up' assume credibility when a safety investigator's behaviour or report is up for public scrutiny. . . ."

That there was an appearance of a conflict of interest and duty inherent in the present organization of the ASB was not put in issue, and that fact may be a sufficient telling point in itself to warrant bringing about a change in the interests of maintaining public confidence. However, it was thought desirable to consider whether there was something more than a mere appearance of a conflict of interest and duty, and to inquire into the effectiveness of the present system of accident investigation.

To that end, hearings were conducted in Toronto commencing on February 25, and concluding on April 25, 1980, and in Vancouver on May 20 and 21, 1980. At those hearings, evidence was heard and submissions received. From hundreds of accident investigation reports studied, a few were selected, which our investigation disclosed highlighted problem areas, and the procedures adopted in those cases became the subject matter for public hearings.

In the case studies the Commission has perceived its mandate to be the examination of the present legislative framework and of the practices and procedures now in effect in order to consider whether improvements can be made for the long term in either the legislation or the procedures, or both. The Commission has not re-investigated the accidents in an effort to determine whether the investigators came to the right

conclusion. Such an inquiry might, at most, have resulted in a conclusion different than that of the investigators, but would not have been material in determining the effectiveness of the present legislative and procedural framework.

At those hearings, in addition to the case studies which were thoroughly inquired into, submissions were received with respect to proposals for an independent accident and incident investigation and reporting tribunal.

At the same time, evidence and submissions were heard with respect to the conflicts between coroners and Department of Transport investigators when both are inquiring into fatal aircraft accidents.

Schedule "A" is the list of all those who participated as witnesses and counsel in this phase of the Inquiry.

CASE STUDIES

1. CHURCHILL FALLS, NEWFOUNDLAND, HAWKER-SIDDELEY HS 125 (CF-CFL) CORPORATE JET, DECEMBER 9, 1977

On December 9, 1977 a corporate jet departed Moncton with Churchill Falls as its destination. The final transmission from the crew disclosed that the aircraft was within two miles of the Churchill Falls Airport, and that the crew could see the strobe lights and visual approach slope indicator system (VASIS). Moncton was alerted when it was evident that the aircraft had not landed. On December 11 the aircraft was located two miles short of the threshold of the runway at Churchill Falls. The aircraft was destroyed on ground impact, the wreckage scattered along a trail of 300 feet, and the two crew members and six passengers all lost their lives. Although the accident occurred only two miles out of the extended centre line of the runway, the wreckage was not located for two days due to extreme weather conditions. It was subsequently determined that two survivors of the crash lived for one to two hours after impact. A searching helicopter had flown over the site within fifteen minutes of the crash with a receiver tuned to a distress frequency. The emergency locator transmitters had been removed from the aircraft pursuant to an Airworthiness Directive.

Included in the Accident Investigation Report, as prepared by the accident investigation team of the Aviation Safety Bureau and approved by the Aircraft Accident Review Board on July 20, 1978, was the following conclusion:

> "3.1.6 The removal of the aircraft's emergency locator transmitters seriously delayed the search and rescue activity and may have caused unnecessary loss of life."

On July 28, 1978 Mr. H. A. Fawcett, the then Acting Director of the Aviation Safety Bureau, wrote to Mr. H. R. Foottit, the then Chairman of the Aircraft Accident Review Board, reporting the concern that certain officials of the Air Administration had expressed with respect to this particular conclusion, as follows:

> "Re: Churchill Falls Aircraft Accident Report
> 5002-H7000
>
> I refer to my telephone conversation of this date with Mr. Baker, the member of the Board who was available. The subject was Finding 3.1.6 of the referenced report and the concern expressed by AATA about the portion of the Finding '. . . may have caused unnecessary loss of life'. AATA believes this statement to be an editorial comment rather than a statement of fact appropriate to a finding.
>
> I believe the question could be argued either way. An important factor in the final decision however, will be the fact that a copy of the report has been provided to the Churchill Falls Corporation for their comments prior to release. If the report is now changed, it will be necessary to inform the company of the change and the rationale for it.
>
> I understand from Mr. Baker that a meeting of the Board is planned for mid-August. We will therefore withhold any further action pending the Board's review of AATA's observation."

On August 10, 1978 the following memorandum was sent from the Minister's office to the Deputy Administrator:

> "As you know we have been receiving inquiries in connection with the Churchill Falls executive jet crash. I am wondering if we are in a position to advise the Minister on the details of this matter as soon as possible after he has returned to Ottawa at the end of August."

On August 22, 1978 the following memorandum was forwarded to Mr. H. A. Fawcett from Mr. P. E. Arpin, Director General, Civil Aeronautics:

"Aircraft Accident Report #H70003
Hawker-Siddeley HS-125, Registration CF-CFL
Churchill Falls, Newfoundland

As discussed during our meeting of this morning, you are requested to make the following changes to the above noted report and obtain the Aircraft Accident Review Board's approval:

1) Delete the statement on the title page that the report has been approved by the Aircraft Accident Review Board;

2) Change para 3.1.6, page 16 to read as follows:

On the assumptions that there had been at least one serviceable ELT on board, that it had been activated as a result of the impact or by other means, and that there was the capability at Churchill Falls of homing to the point of origin of the ELT signal, the rescue activity may have been expedited;

3) Re-introduce the new page of approval by the Aircraft Accident Review Board on the title page.

Needless to add that the circumstances dictate that this approved document must be available within the next few hours so that it can be made public without any further delay."

On the same day Mr. H. R. Foottit responded to Mr. H. A. Fawcett's letter of July 28, 1978 as follows:

"Churchill Falls Aircraft Accident Report 5002-H7000

I tabled your letter File 5002-H 7000 (A/DAS) dated July 28th, 1978 at the 21st Meeting of the Aircraft Accident Review Board on August 17th, 1978. The Board spent some time questioning your staff and Dr. Dube on the details of the accident, and even reviewed some of the Coroner's reports on the victims.

As a result we concluded that:

(a) Churchill Falls airport is well equipped and has 'standby' personnel to respond to an emergency.

(b) Consequently they can react quickly (and did) to initiate search and rescue operations.

(c) Two survivors of the crash lived for one to two hours.

(d) The aircraft had full provision for two ELT's.

(e) Considering all the circumstances of this accident, if these ELT's had been installed it is very reasonable to expect that the survivors could have been rescued.

(f) The finding is therefore correct as written.

The only part of the finding not stated is the assumption that at least one of the two ELT's would operate in the crash environment, knowing there was no fire. We did not consider it necessary to state this assumption since it is rather obvious. However, if you wish to add a footnote to this effect, we have no objections.

The Board also considered that this is an important finding from the safety aspect. As each report cover states 'this accident was investigated to provide guidance towards the prevention of a reoccurrence', and this finding is pertinent to this philosophy."

On August 23, 1978 the Deputy Administrator wrote to Mr. Bob Ward of the Minister's office as follows:

"Subject: Churchill Falls Accident Report.

I am replying to your memorandum of August 10, 1978, inquiring about the details of the Churchill Falls accident. The initial report was reviewed and approved by the Aviation Accident Review Board on Thursday, August 17th; however, after review by CATA Senior Management on Tuesday, August 22nd, it was found that paragraph 3.1.6 which read as follows was inaccurate:

'3.1.6 The removal of the aircraft's emergency locator transmitters seriously delayed the search and rescue activity and may have caused unnecessary loss of life.'

and therefore it was decided to change it to the following:

'3.1.6 On the assumptions that there had been at least one serviceable ELT on board, that it had been activated as a result of the impact or by other means, and that there was the capability at Churchill Falls of homing to the point of origin of the ELT signal, the rescue activity may have been expedited.'

The Aviation Accident Review Board will be asked to review this change at their next meeting which is to take place within the next ten days, and they will be reporting their views to the Director General, Civil Aeronautics as per the regular procedure.

The accident report is being released today and copies have been provided to DGPA."

It is to be noted that the edited version of the report was published by senior management without the approval of the Aircraft Accident Review Board, and over the protestations of Mr. Fawcett who would not himself effect the change.

By the following letter to Mr. H. R. Foottit, dated August 31, 1978, Mr. Fawcett expressed his grave concern as to the manner in which this accident investigation report was disposed of and made public:

"Re: Churchill Falls Aircraft Accident Report
5002-H70003

I refer to my letter of 28 July reporting a complaint by AATA about Finding 3.1.6 which was subsequently dealt with by the Board on 17 August. This letter is intended to inform you of further changes made to the accident report in breach of agreed upon procedures.

On the morning of 22 August I was summoned to the office of DGCA where I was asked to explain the controversy respecting Finding 3.1.6. I was asked if I could not change it in conformance with the wishes of AATA. I explained that I had conveyed the view of AATA to the Board and that the decision would be transmitted in a letter to AATA. I also pointed out that, having reached a consensus (Procedure 8) with the Board on the content of the report, ASI was not at liberty to change it.

The meeting then moved to the office of DAA. The explanation of the controversy was repeated for the benefit of DAA. After much discussion it was decided that the existing 3.1.6 would be deleted and a new one substituted. I was directed to make the change. Under these circumstances, where I was caught in a difference of opinion between the Board, with whom I had an agreement to honour, and senior management to whom I am organizationally responsible, I asked for written direction. This was subsequently provided, although the tone of it is somewhat less authoritarian than the instructions which were given to me verbally. I also made it clear at the time, that the proposed new 3.1.6 was not a true reflection of the facts and consequently could not be agreed to by investigators. The report was changed and released the following day.

I believe what has taken place has been damaging to the Board, Transport Canada and Safety Investigators. Any subsequent reports produced will be viewed with even greater skepticism than in the past. Although past charges of censorship of investigator's reports have been denied by a number of officials including the Minister himself, it has now been publicly demonstrated as a fact. The credibility of the parties involved and of safety investigation reports have been seriously damaged.

Without arguing the merits of Finding 3.1.6, it is clear from this case and past experience that the observations of investigators do not always coincide with the beliefs of regulatory officials as to what is taking place in the aviation community. This is not surprising given their differing vantage points. Thus, when a report is issued, the reader must know from which vantage point the circumstances of the accident are being viewed. The reader must also be confident that the writer of the report has no vested interest in the circumstances surrounding the accident and is presenting an unbiased view. The activities of the Board, because it is an independent body, were beginning to develop public confidence in our reports and fewer demands for public enquiries were being heard. I now fully expect to see this development reverse.

I respectfully submit this to clarify my position in respect of this departure from agreed to procedures."

The Aircraft Accident Review Board also expressed its dissatisfaction as disclosed in the following letter of September 14, 1978 addressed to the then Minister of Transport:

"Aircraft Accident Review Board: Aviation Safety Bureau Report #H 70003

I understand that you are now aware of the fact that the Board did not approve the above accident report entitled:

'Hawker-Siddeley HS-125, Registration CF-CFL, Churchill Falls, Newfoundland, 9th December 1977'

The report was released by Transport Canada on August 24th, 1978. In accordance with the Board's 'Procedures', I am notifying you of our disapproval and the rationale behind it.

The reason this letter has been delayed is that the Board, at its 22nd meeting on August 31st, was told that the report would be amended or reissued, to conform in essence to the version approved by the Board at its 20th meeting on June 29th. However, I was advised by Mr. W.M. McLeish on September 14th, that the amendment or reissue would not take place. Consequently we had no alternative but to advise you of our disapproval.

The attached Appendix A outlines the Board's views on the only point of disagreement - Finding 3.1.6, page 16. The Board has not changed its mind on the original version, and we still recommend that you authorize an amendment to the report to conform to the Board's decision."

* * * * * * *

"Appendix 'A' to the letter to the Minister of Transport dated September 14th 1978.

Aircraft Accident Report #H 70003

(HS-125: Churchill Falls, NFD., 9th December 1977)

Finding 3.1.6

1. Original Version approved by Board

'The removal of the aircraft's emergency locator transmitters seriously delayed the search and rescue activity and may have caused unnecessary ioss of life'

Rationale

(a) 'Removal of the emergency locator transmitters' - covered in the report, page 12, paragraph 1.17.1

(b) 'Seriously delayed the search and rescue'

- Churchill Falls airport was well equipped to respond to an emergency: 'A local search was initiated with two helicopters' (page 1, paragraph 1.1)

- And 'A searching helicopter had flown over the site within 15 minutes of the crash with a receiver tuned to a distress frequency' (page 12, paragraph 1.17.1)

- It was dark with light snow or ice crystals (page 4, paragraph 1.7)

- Churchill Falls knew the aircraft was on the approach 'two miles back on final' (page 1, paragraph 1.1)

- It is therefore reasonable to assume that if at least one of the ELT had been operating the signal would have assisted the helicopter in finding the site.

- In other words, the lack of an operating ELT seriously delayed the search and rescue.

(c) 'and may have caused unnecessary loss of life'

- Autopsy findings indicated that two passengers survived the crash and evacuated the aircraft (page 10, paragraph 1.13.4)

- 'they died of exposure to cold' (page 10, paragraph 1.13.4)

- Medical evidence given to the Board indicated that they lived one to two hours after the crash

- It is therefore reasonable to assume that these passengers had a chance of being rescued if the wreckage could have been located quickly

- or in other words, lack of an operating ELT 'may have caused unnecessary loss of life'

(d) Assumption: All of the above assumes that at least one of the ELTs, if installed, would operate in the crash environment. This was not stated, as it appears obvious. However, the Board suggested to Transport Canada officers that this could be put in as a footnote to the Finding, if they so desired. This option was rejected in favour of rewording the Finding.

2. Revised version not approved by the Board

'On the assumptions that there had been at least one serviceable ELT on board, that it had been activated as a result of the impact or by other means, and that there was the capability at Churchill Falls of homing to the point of origin of the ELT signal, the rescue activity may have been expedited'

Comments

(a) The first part of this covers a number of assumptions. The format does not conform to the other findings where the assumptions are not stated. Moreover these assumptions could have been put in as a footnote to the original version as the Board suggested, though did not recommend.

(b) There was a capability at Churchill Falls to home in on the ELT signal - so this is not an assumption at all.

(c) 'The rescue activity may have been expedited': if all the assumptions are correct, then the rescue activity 'would' have been expedited.

(d) The finding does not cover the loss of life. The Board considered this should be in this finding, since it is an important point to give weight to the importance of ELTs.

(e) The front cover of all these reports has a statement 'This accident was investigated to provide guidance towards the prevention of a recurrence'. In the Board's opinion, the original version goes much further to fulfilling this objective than does the revised one."

The Chief Magistrate of the Provincial Court of Newfoundland conducted an inquiry into the Churchill Falls accident under the Summary Jurisdiction Act, R.S.N. 1970, Chapter

364, Section 127, a proceeding analogous to a coroner's inquest. The learned Magistrate made the following findings:

"Aviation Safety Investigation Report

The Aviation Safety Bureau of Transport Canada maintains a staff of investigators who are experts in aviation and related fields. They are designated Aviation Safety Investigators. A team of investigators is assigned to each aircraft accident and they report to, and are monitored by, a board designated the Aircraft Accident Review Board. This Board was comprised of three experts in the civil aviation field during and after the CF-CFL accident investigation. One member was a retired Air Canada Captain, another a retired Air Force Technical officer and the third a scientist with the National Research Council.

Following constant consultation and monitoring by the Board, the Aviation Safety Team write their report and if approved by the Board, it is released for publication by Transport Canada. That was the procedure followed with respect to the crash of CF-CFL on the night of December 9, 1977. Aircraft Accident Report #H 70003 was approved by the Aircraft Accident Review Board on July 20, 1978, and a limited number of copies were released to the public. However, publication of this report was cancelled. This is the report referred to as H.R.G.1 in the transcript of evidence.

At a subsequent date, a second version of Aircraft Accident Report #H 70003 was released by Transport Canada and made available to the Provincial Court, Wabush, Newfoundland, November 7, 1979. An identical copy marked H.R.G.2 was put into evidence at this inquiry. This second version of the report was not approved by the Aircraft Accident Review Board and was repudiated by Aviation Safety Investigators appearing at the inquiry. As far as they were concerned, the first report, that having the approval of the Aircraft Accident Review Board on July 20, 1978, was the official report.

The difference between the approved report of July 20, 1978, and that released by Transport Canada later was with respect to the findings and recommendations. On page 16 of the first report, Finding 3.1.6 showed:

3.1.6 The removal of the aircraft's emergency locator transmitters seriously delayed the search and rescue activity and may have caused unnecessary loss of life.

Recommendations were set out on page 17.

In the second report, finding 3.1.6 was deleted and the following substituted.

3.1.6 On the assumptions that there had been at least one serviceable ELT on board, that it had been activated as a result of the impact or by other means, and that there was the capability at Churchill Falls of homing to the point of origin of the ELT signal, the rescue activity may have been expedited.

Page 17 containing recommendations did not appear at all in the second report.

Based on the evidence presented at this inquiry, the report approved by the Aircraft Accident Review Board on July 20, 1978, is accepted. The altered second report is rejected as not being consistent with the facts adduced at the inquiry and known to officials involved at the time. It is to be regretted that jurisdictional problems do not always permit the calling of all witnesses. . . .

The Aviation Safety Bureau which comprises Aviation Safety Investigators and the Aircraft Accident Review Board, function within Transport Canada. Any organization having the overall authority to investigate itself will invariably be sorely tempted to exonerate itself when the need arises. The only way to remove this temptation and retain objectivity is to ensure as far as possible that the investigative body is independent. It is refreshing to find within a bureaucracy men of such objectivity and integrity as the members of the Aviation Safety Investigation team who appeared before this inquiry."

COMMENT ON CASE STUDY NO. 1

Although it would appear that the Minister of Transport of the day was anxious that the Accident Report be finalized, there is no suggestion that he was aware of the manner in which this report was being published. As a result of his subsequent intervention, the original version of the report, as prepared by ASI and approved by the Aircraft Accident Review Board, was re-issued and became the official public report.

It is to be observed that paragraph 3.1.6 of the Accident Investigation Report, in its original version, was highly critical of the Air Administration. The amendment watered down the adverse criticisms of the Air Administration. It may well be that the Accident Report, as originally framed and ultimately published, was subject to a valid complaint by the Air Administration.

As is noted in the Accident Investigation Report, the two aircraft emergency locator transmitters had been removed in compliance with an Airworthiness Directive (CF 77-11) issued because of malfunction (exploding lithium batteries in other aircraft). Thus, there were valid reasons for the Administration to direct that the emergency locator transmitters be removed from all aircraft rather than allowing the emergency locator transmitters to be used. Since the use of that equipment could, in itself, be the cause of an accident, the Administration determined that it was better to have them removed.

At the time of the Churchill Falls accident, there did not appear to be a universally accepted alternative. (The matter of emergency locator transmitters and the present state of the legislation with respect to that equipment became a very contentious issue during the hearings and will be dealt with in a later report).

However, the change in the Accident Investigation Report by the Air Administration was contrary to the procedure established with the introduction of the Aircraft Accident Review Board and to the purported purpose of giving the appearance of independence to the Aviation Safety Bureau. That procedure did contemplate the right of the Air Administration, and any other involved party, to take objection before the Aircraft Accident Review Board as to any proposed findings before finalization of the report, but it did not contemplate senior management overriding either the Aviation Safety Bureau or the Aircraft Accident Review Board and publishing the report on its own.

It is to be observed, however, that the procedures in place are merely internal administrative procedures, and there is no statutory framework which governs. The Commission was advised that this incident occurred in the early days following the introduction of the Aircraft Accident Review Board, and that it would not be repeated. I have found no evidence of any repetition of this type of interference, but in the absence of a statutory change, there is nothing to prevent a recurrence.

I agree with what Mr. Fawcett stated in the following paragraph of his letter of August 31, 1978, which deserves repetition:

> "I believe what has taken place has been damaging to the Board, Transport Canada and Safety Investigators. Any subsequent reports produced will be viewed with even geater skepticism than in the past. Although past charges of censorship of investigator's reports have been denied by a number of officials including the Minister himself, it has now been publicly demonstrated as a fact. The credibility of the parties involved and of safety investigation reports have been seriously damaged.
>
> Without arguing the merits of Finding 3.1.6, it is clear from this case and past experience that the observations of investigators do not always coincide with the beliefs of regulatory officials as to what is taking place in the aviation community. This is not surprising given their differing vantage points. Thus, when a report is issued, the reader must know from which vantage point the circumstances of the accident are being viewed. The reader must also be confident that the writer of the report has no vested

interest in the circumstances surrounding the accident and is presenting an unbiased view. The acitivites of the Board, because it is an independent body, were beginning to develop public confidence in our reports and fewer demands for public enquiries were being heard. I now fully expect to see this development reverse.

I respectfully submit this to clarify my position in respect of this departure from agreed to procedures."

In this case there was not only an appearance of a conflict of interest but also a direct conflict when senior management unilaterally overruled the Aviation Safety Bureau and the Aircraft Accident Review Board in order to remove the criticism of the regulatory authority contained in the original accident report.

2. DEPARTMENT OF TRANSPORT BEECHCRAFT 65-90 KING AIR C-FCAS SHERRINGTON, QUEBEC - MAY 1, 1979

Aircraft C-FCAS, a Beechcraft 90, was utilized for calibration of navigational and approach aids by the Airways Branch of the Department of Transport regional office at Dorval, Quebec. On May 1, 1979, while calibrating a radar antenna located at the Dorval airport, the aircraft suffered a right wing separation and crashed in open farm land near Sherrington, Quebec. The crew of two (the pilot and co-pilot - Department of Transport employees) were fatally injured in the crash, and the aircraft was destroyed.

Consequent upon the fatal accident, safety concerns were expressed, in no uncertain terms, by the Aircraft Operations Group of the Air Administration relating to the maintenance of departmental aircraft.

This accident will be discussed in greater detail under the subject of departmental aircraft which will be subsequently reported upon.

For my present purposes, it is to be noted that the investigation of this accident had perforce to be investigated by the Aviation Safety Bureau, with the resulting appearance of a conflict of interest of the Department investigating an accident which related to one of its own aircraft and which caused the death of two of its own employees.

A major part of the investigation in this case was conducted by the Aviation Safety Engineering Division (ASE) which was required to analyse the remains of the critical portion of the aircraft where the fault occurred. One of the tasks of ASE was to determine whether the Department of Transport had complied with an Airworthiness Directive issued by the Federal Aviation Administration of the United States relating to mandatory inspections of this particular aircraft. The intent of the Airworthiness Directive was that an initial inspection of the lower forward outboard wing attachment fittings be undertaken before the aircraft had flown 5000 hours with subsequent inspections at 500 hour intervals. The inspection called for a dye penetrant test to ascertain whether there was cracking in the outboard fitting.

C-FCAS was inspected at 4900 hours. The documentation with respect to that inspection is ambiguous and does not support a conclusion that the required dye penetrant test had been performed during the inspection.

The accident investigators interviewed the mechanic who carried out the inspection and who advised them that in fact he had performed the dye penetrant test as required by the Airworthiness Directive.

From a physical examination of the relevant component parts, the accident investigators were unable to conclude that a dye penetrant test had been made at 4900 hours. They were satisfied that a test of the reddish stains which appeared in the relevant area of the aircraft would not be conclusive as to whether the dye penetrant test had been made at 4900 hours. Nevertheless, by accepting the statement of the mechanic, the accident investigation report concluded:

> ". . . The failed fitting from C-FCAS was properly inspected in Ottawa at 4907 hours when the aircraft was in maintenance for extensive engine repair. No defect was found at that time because detectable cracking had apparently not developed as yet."

The accident investigators were also of the opinion that if the dye penetrant test had been made at 4900 hours, it would not have disclosed any cracking since it was their opinion that no cracking had yet developed.

I am satisfied that the conclusion that the aircraft had been properly inspected at 4900 hours was made in good faith. However, because the investigation was being conducted by employees of the Department of Transport, that conclusion was viewed suspiciously by the Federal Aviation Administration of the United States, the manufacturer of the aircraft, and those employees of the Department of Transport who were particularly interested in the investigation.

Although the FAA Airworthiness Directive appears to require a further examination at 500 hour intervals, there was no inspection made at 5400 hours. The plane crashed at 5464 hours.

In considering why no examination was made at 5400 hours, the accident investigators were persuaded that the Airworthiness Directive was ambiguous and concluded as follows:

> "The region did not carry out a subsequent inspection of the lower forward outboard wing attachment fitting because they understood the AD 70-25-4 to mean that if no wing panel skin cracks were found, no further inspection was necessary. If skin cracks were found then para B had to be completed at 500 hour intervals. If skin cracks were found at the most outboard screw hole then para B would have to be completed at 300 hour intervals and para D at 500 hour intervals.
>
> Investigators consulted five operators involved with the operation of four King Airs of the series mentioned in Airworthiness Directive 70-25-4 and learned that three had interpreted the inspection cycle requirements of the AD differently. Of the five agencies interviewed, one operator surmised that if no skin cracks were found on the 100 hour visual inspection, the dye penetrant and eddy current check were called for at 1000 hour intervals. Another interpreted the AD correctly but, through transposition of numbers indicating accumulated flying hours, overflew the inspection cycle by some 50 hours. One operator assumed that if no skin cracks were found, no further inspections were required. Another realized that skin cracks reduced the time between inspections but had interpreted differently than intended the hours stipulated between cycles if cracks were found."

The Federal Aviation Administration of the United States and the manufacturer were of the view that there was no ambiguity in the Airworthiness Directive, and because of the relationship of the accident investigators to the Department of Transport, the acceptance by the accident investigators of the explanation for the failure to make a further inspection at 5400 hours was again viewed with suspicion.

In the course of the investigation, ASE ascertained that there had been two cracks in the fittings of other Beech aircraft long before they had been flown for 5000 hours. In the opinion of ASE, and from the research that they had made, there was a generic defect in the fitting, and the fault could occur before the first dye penetrant test provided for in the Airworthiness Directive and could also occur between the time of the first inspection and the second inspection prescribed. It was the opinion of ASE that a further Airworthiness Directive was required for the replacement of the defective fitting, and considerable testimony was given in support of that opinion.

It was the opinion of Mr. R. K. McLeod, of ASE, with respect to whose testimony I was particularly impressed, that the FAA and the manufacturer, who were both resisting the finding as to the generic defect and the implementation of the proposed new Airworthiness Directive, attached less credibility to the investigation because it was being conducted within the Department.

In the evidence given before the Commission, it was the opinion of the accident investigators that if the inspection had been made at 5400 hours by using the dye penetrant test, the cracking would have been clearly visible, and the accident would have been avoided. In my opinion such a conclusion should have been included in the report. The absence of that conclusion could be attributed to a desire on the part of ASB to protect the regulatory authority. However, I am satisfied that that was not the purpose of omitting such a conclusion. The absence of such a conclusion evidences the resistance of the ASB to assign fault in any accident investigation report wherever that fault may lie. This fundamental issue will be dealt with in detail subsequently.

COMMENT ON CASE STUDY NO. 2

In this case I am satisfied that the ASB investigated the accident and arrived at their conclusions with expertise and in good faith and set forth their conclusions in the manner that they thought most appropriate, without any intention on their part to favour the DOT, but they were in an untenable position by reason of their conflict of interest position. The investigation and report, therefore, became ineffectual.

This case study demonstrates how undesirable it is to have an investigation of an accident relating to a departmental aircraft undertaken by investigators who, in turn, are employees of the Department.

The case study is also of significance when one comes to consider the future role of Aviation Safety Engineering.

3. AIRWEST AIRLINES LTD. - DE HAVILLAND DHC6-200 (FLOATS) (CF-AIV) VANCOUVER, BRITISH COLUMBIA, COAL HARBOUR, SEPTEMBER 3, 1978

On September 3, 1978 Airwest Airlines Ltd., DHC6 (CF-AIV) operating as a scheduled flight pursuant to visual flight rules departed Victoria Harbour, British Columbia, with Vancouver Harbour Water-Aerodrome, Coal Harbour, as its destination. The estimated time enroute was twenty minutes.

While undertaking a visual approach to Vancouver Harbour, the aircraft suddenly rolled left when 175 feet above the surface and approximately 2500 feet from the intended landing area and plunged into the water. The two members of the crew and nine passengers were killed, and two other passengers were seriously injured. The aircraft was destroyed on impact. The flight had been of twenty-four minutes duration.

The investigation as to the cause of this accident became a lengthy, complicated and highly technical inquiry as well as a controversial one. The investigation disclosed the unsatisfactory relationship which then existed between accident investigators, the Airworthiness Division of the Department of Transport, senior management of the Department of Transport and the manufacturer as well as the coroner's office in British Columbia. I will deal later with the relationship of the accident investigator and the coroner.

Relationship with Airworthiness Engineering

The de Havilland DHC6 is a Twin Otter aircraft. The aircraft impacted water which led to a difficult analysis of the mode of impact compared with what one would be able to

establish if the aircraft had struck ground. A water impact makes a wreckage plot impossible, and, in this case, in an attempt to save the passengers, the wreckage had to be moved. Many important pieces of evidence were lost.

A decision was made to send help from headquarters to the regional investigators, and later the investigation was taken over by headquarters. The principal study was undertaken by the Aviation Safety Engineering Division of the Aviation Safety Bureau.

By reason of what was learned from the history of the flight and from an examination of the left propeller, the investigation initially centered on the propeller system. It was only some time later, after the recovery by divers for Airwest of the flap rod from the scene of the crash, that attention centered on the flap system, and the engineers of the Aviation Safety Engineering Division were satisfied that there was no inflight involvement of the propeller system in the accident.

In March 1979 the engineers concluded that the flap had blown up in flight, and that the flap rod was severely stress corroded, had at least three longitudinal cracks and had separated from its inboard fitting.

The Airworthiness Division of the Department of Transport was advised by the Aviation Safety Engineers that it was apparent that the failed mechanism was common to all magnaformed aluminum alloy flap rods, that the inspection techniques were deficient, and that there was no fail-safe back-up. The specific flap rods then became the subject of Airworthiness Directives issued by the Canadian airworthiness authority.

In July 1979 the Airworthiness Division was advised by the Aviation Safety Engineers that other magnaformed control rods were susceptible to stress corrosion cracking, i.e., elevator rods and aileron rods, and that the stress corrosion problem was generic to all magnaformed control rods which formed part of the structure of the Twin Otter. At the same time, the Airworthiness Division was advised by the Aviation Safety Engineers that, in their opinion, this constituted a serious flight safety problem.

No action was taken by the Airworthiness Division at that time to meet this safety hazard. The explanation given by the Airworthiness Division for its failure to take

immediate action was that they had been advised by the manufacturer that although a failure of the aileron or elevator rods might constitute a slight safety hazard, the aircraft was controllable notwithstanding such failure and did not constitute a significant safety hazard.

The employee of de Havilland who was alleged to have given such information denied that he had ever told anyone at Airworthiness that the aircraft was controllable with a disconnected aileron. Mr. John Thompson, a senior engineer with de Havilland, denied that any such assurance could have been given by de Havilland and was of the opinion that although the Twin Otter might be controllable with a disconnected elevator rod, it could not be controlled if the aileron had failed.

I cannot help but feel that the Airworthiness Division was under the impression, as a result of the response provided to them by de Havilland, that the information received by it from the Aviation Safety Engineers did not constitute an immediate safety hazard. However, it was apparent that, at this stage, de Havilland was resisting the suggestion that there was a generic defect in the aileron and elevator rods. If there had been no such defect, there would not have been a safety hazard and, therefore, there might have been a misunderstanding as to the nature of the information being supplied by the manufacturer. However, the response of Airworthiness to the information provided to it by the Aviation Safety Engineers was far from satisfactory. The information was of such a serious nature that it called for a searching inquiry by Airworthiness before any consideration could be given of rejecting the urgent pleas of the Aviation Safety Engineers for action. One would have expected that Airworthiness would have at least required a hazard analysis to have been produced and to have gone through it step by step before being satisfied. If Airworthiness failed to take action because of the assurance of the manufacturer that there was no safety hazard in the event of a failure of the aileron and/or elevator rods, as they state, the inquiry made by them before accepting such assurance was completely inadequate.

The opinion of the Aviation Safety Engineers that a serious flight safety problem was then in existence, by reason of stress corrosion of the magnaformed control rods, was based on careful and sound engineering practices and should have been the subject of serious concern by the Airworthiness Division of the Department of Transport.

A tragic, subsequent event proved them to have been correct.

Relationship with Management

Shortly after the investigation was commenced by the accident investigators of the Aviation Safety Bureau, the then Deputy Director-General began interfering with the investigation. He questioned specific Aviation Safety Bureau's decisions relating to the examination and testing of the evidence to such an extent that the Chief of Aviation Safety Investigation felt compelled to protest. He pointed out to the then Deputy Director-General that his authority was limited to policy decisions and the administration of the Aviation Safety Bureau, and that he had no right to interfere with the actual investigation. The Deputy Director-General did not appear to accept such a limitation on his authority.

In November 1978 the Administrator convened a meeting to discuss the September 3, 1978 accident and other accidents involving the Twin Otter, including one which had occurred at Point Barrow, Alaska, in the month of October. The Administrator explained that he was particularly concerned with accidents relating to Twin Otters and, quite properly, outlined the particular importance that Twin Otters played in the Canadian manufacturing industry. He stated that he had decided to form an ad hoc committee, chaired by the Chief of Airworthiness Engineering, and comprised of representatives from Airworthiness, de Havilland, the manufacturers of the component parts of the Twin Otter, and others, including representatives of Aviation Safety Investigation and Aviation Safety Engineering. It was his opinion that such a committee would be helpful in the search for a solution to the accidents relating to Twin Otters then under investigation by Aviation Safety Investigation, and that such a committee would add technical and operational knowledge. It was agreed by all that the ad hoc committee was formed in good faith and with the best of intentions.

However, the appointment of the ad hoc committee created confusion in the investigation with two CATA bodies involved, i.e., the committee and Aviation Safety Investigation. Mr. Lorne Tapp, who was in charge of the investigation for ASI, stated that "no one knew exactly who was running what". Certain documents were not provided to the ASI team, which should have been. It was never made clear to all the participants what the

role of the ad hoc committee was and how this role interrelated with the normal investigation process of the ASI team, and the ad hoc committee had the added difficulty of including the component manufacturers as part of an inquiry into matters which may have found them at fault.

The committee reported on June 22, 1979. It identified two possible problem areas as follows:

> "(1) a failure of the flap system caused by stress corrosion cracking of a flap rod end permitting all of the port flaps to retract, resulting in loss of control of the aircraft
>
> (2) a failure of the left hand propeller system caused by undetermined factors resulting in the propeller blade angle going to angles below the flight fine pitch stop in flight and resulting in asymetric thrust when power was applied."

The measures to prevent the recurrence of a similar accident were set forth as follows:

> "A. Flap System Failure
>
> During the course of the investigation, stress corrosion cracking of flap system rod ends was discovered. As a result Airworthiness Directives were issued (See Annex B and Annex C). The stress corrosion cracking appeared to be confined to material 2024-T3 used in earlier models of the DHC-6.
>
> Unless there are further indications that additional emergency action is required, it is intended that:
>
> i, action will be taken to replace all the early 2024-T3 rods with the later 2024-T81 rods;
>
> ii, the inspection procedures of all control rods will be reviewed and modified as required;
>
> iii, an assessment will be made on the need to develop an AFM procedure to detect and manage asymetric flap conditions.
>
> B. Propeller System Failure
>
> As a failure which could have caused the propeller blade angle to go beyond the flight range was not identified, the following actions are being pursued to reduce the consequences of such a failure:

1. On aircraft equipped with a beta back up system, to enable the determination of correct operation of the beta range throttle arming micro-switch, an Airworthiness Directive is being prepared (Annex D) to make mandatory de Havilland Service Bulletin 6/309, or an equivalently safe procedure will be developed;

2. The DHC-6 Airplane Flight Manual will be amended to;

   i, prohibit the selection of ground beta propeller blade angles in flight

   ii, clarify procedures to detect and manage various propeller system failures."

It is to be observed that no specific reference was made to the generic stress corrosion problem relating to all control rods which the Accident Safety Investigation team discovered. Although, as has been noted, there is a reference in the ad hoc committee report proposing that "the inspection procedures of all control rods will be reviewed and modified as required", nothing appears to have been done to follow up that recommended step until February, 1979.

It is apparent that the interference of the Deputy Director-General and the appointment of the ad hoc committee confused and delayed the work of the Accident Safety Investigators who appear to have all the necessary expertise to carry out their responsibilities on their own.

Relationship with the Aircraft Manufacturer

In its brief to the Commission relating to the investigation of this accident, the Aviation Safety Bureau complained of what they regarded as a lack of co-operation of the manufacturer in their investigation. I set out hereunder some of the pertinent complaints made:

> "Following the accident an insurance adjuster reported to the investigator-in-charge and stated that he represented de Havilland. This having been established no more thought to de Havilland representation was given.
>
> Later in the investigation de Havilland complained that they had not been given representative status to this investigation. Although according to the ASI manual, participatory status can be given to a manufacturer provided he

has something to contribute, it is not policy to invite participation automatically but rather to wait for would be participants to request this status from ASI. We have never, to my knowledge, turned down any manufacturer.

De Havilland does not seem to have a system to respond to significant accidents involving their products as do other major manufacturers in North America. A question that arises is why de Havilland, who did not participate in the DHC6 (CF-QDG) accident at Frobisher Bay or the DHC6 (CF-ABW) at Nanasivik, N.W.T., or at 18 other DHC6 accidents prior to the Coal Harbour occurrence, suddenly complained that they were not invited to the Coal Harbour occurrence.

. . . As the investigation continued de Havilland was asked in some instances to carry out certain mechanical and flight tests and in some instances de Havilland instigated certain testing. The documented results of the tests, including any written reports, were requested by the Aviation Safety Bureau, but none were forwarded.

Initially this was thought to be the result of the formation of the Ad Hoc Committee and the possible confusion it caused. However after the Committee was disbanded, information from the manufacturer was still not made available to the Aviation Safety Bureau.

Some of the test results were forwarded to the Canadian Airworthiness authorities, some were forwarded to individual members of the Accident Review Board, and some were presented at formal meetings of the Accident Review Board however none were given in the first instance to the Safety Bureau. It seemed as though the purpose of the production of these reports was actually to refute any preliminary analysis being made by the investigation team. de Havilland had been invited to almost every test, teardown and component strip carried out by or under the auspices of the Safety Bureau. They were given access to the wreckage (which had been released to the operator) in January for as long as they needed to analyse the structural breakup. (They requested further access to the wreckage some months later and the operator (who was storing the wreckage at his cost) agreed only if de Havilland would provide a report of their analysis. Nothing more was heard from de Havilland.)

De Havilland continued for at least another year to oppose all ASB analysis which concluded that the de Havilland flap rod had failed in flight. When it was first determined definitively in March 1979 that the flap had blown up in flight and that the flap rod on the accident aircraft and one other comparison rod were stress corroded, the de Havilland reps agreed with the ASE analysis. However after returning to de Havilland they reversed themselves and spent considerable time and resources trying to prove ASB wrong (as we learned from other sources). . . . In the meantime, because de Havilland did not accept the position that their product was deficient and that other critical components similarily manufactured were also susceptible to stress corrosion cracking, nothing was done to rectify the overall problem. The specific flap rods were the subject of an Airworthiness Directive issued by the Canadian

Airworthiness authorities and de Havilland promulgated a Service Bulletin. However at least one further Twin Otter accident occurred in Canada where an aileron rod, similar in design, failed in flight due to stress corrosion cracking." (Sechelt, British Columbia, September 30, 1979).

As has been observed, the manufacturer resisted the conclusion of the Aviation Safety Bureau that the de Havilland flap rod had failed prematurely in flight. When the draft accident report, which included such a finding, was submitted to the manufacturer, the manufacturer took issue with it.

It would appear that it did so by reason of tests conducted by its own engineering staff, the results of which did not conform with that of the Aviation Safety Engineering experts. There is no question but that the engineers, upon whom the manufacturer was relying, had great expertise, which fact was acknowledged by the Aviation Safety Bureau. It is also understandable that the manufacturer would subjectively favour the opinion of experts who supported the soundness of the structure of the aircraft. What was complained of by the Aviation Safety Bureau was a lack of exchange of information from the manufacturer.

In November 1970 de Havilland issued a Technical Advisory Bulletin 626. That bulletin provided in part as follows:

> "3.5 Two components in the Aileron control circuit located at the final connection to the aileron surface have proven to be vulnerable to corrosive attack. . . .
>
> b) Push Rods . . . These should be examined particularly at the magnaformed ends for breaks or blisters in the paint indicating corrosion beneath the surface; or for signs of corrosion at any area of anodic treatment breakdown. Any attack in this area which is highly stressed could cause stress corrosion with the additional danger of cracking and loosening of the magnaformed ends."

Mr. T. W. Heaslip, Chief, Aviation Safety Engineering, testified that de Havilland at no time indicated to him that they had known as early as 1970 that the aileron rods had a stress corrosion problem in the magnaformed ends, and that the Technical Advisory Bulletin 626, which outlines this problem, was not brought to his attention until some time in 1979.

The Aviation Safety Bureau also complained that the tests which were being made by the engineers, upon whose opinion the manufacturer was relying, were not provided to the Aviation Safety Bureau for its comments or consideration.

On January 25, 1980 Mr. T. W. Heaslip wrote Mr. M.C.W. Davy, Vice President - Engineering, the de Havilland Aircraft of Canada Ltd., in response to de Havilland's criticism of the draft accident report. In that letter he painstakingly advised de Havilland as to the basis of the conclusion of the Aviation Safety Bureau that the flap rod had failed prematurely in flight and enclosed some details of the tests made and photographs of the subject rod. He went on as follows:

> "I and my staff do not profess to be experts in Twin Otters but we are as expert as any in this world in the investigation of wrecked aircraft. Therefore let me make some other points about this accident. It is rare that we have as much information to analyse as we have in this accident. If for one moment we forget the rod and its influence on the accident let us look at some other crucial facts. First of all it is clear that from the moment of upset to water impact is approximately eight seconds. (The photographer who snapped the aircraft in-flight heard the loud bang immediately on putting his camera down. This photo was taken ten seconds prior to impact. The whole accident sequence therefore developed in only eight seconds). Now this figure may be out one or two seconds (high or low) but it certainly isn't more, as can be shown very clearly by the known positions of the aircraft during its last fifty-nine seconds. Please read the attached statement of Bob Stewart, an outside witness with extensive aviation background, who followed the last 25 seconds of flight. It is very clear from him and others that the aircraft started to roll immediately after he heard the bang. Three witnesses reported the wings vertical at impact. There is no possibility the aircraft hit at a near level attitude. In fact there is almost no room for it to hit in a near level attitude. The physical evidence shows a massive concentrated explosive force at the wing tip on the left wing. This is very similar to the Sechelt accident except that in that case the right wing tip hit first. The left wing root failures are a mirror image to the Sechelt failures on the right wing. Therefore if one accepts the mass of evidence that the left wing of the aircraft struck first then the subject rod had to have failed prematurely in-flight. As the left wing rotated into the fuselage the loading on the hangers, hinges and rods of the flaps and ailerons left a snapshot of physical evidence of the position of the surfaces at impact. At that instant the flaps were fully up. For the flaps to go from fully down to fully up during the impact sequence, leaving no evidence on the fuselage or elsewhere of the flaps traversing this range after failing the severely weakened rod, as proposed in de Havilland reports, is just not possible considering the known attitude of the aircraft at impact and the time intervals involved. To say that the cracked rod, which had a load carrying capability of only 500 to 1200 lbs., is unrelated to the evidence of flap fully up at impact does not seem logical.

This probably all makes very heavy reading but I assure you that I have no axe to grind, and my primary concern is safety. I am fully prepared to discuss any of the subject evidence, testing results and analysis involved in the accident with your staff. I or Jack Melson have already given much of this information to members of your staff and your legal counsel. It is important to note that we have other examples of stress corrosion cracks on flap, aileron and elevator rods from Twin Otters.

We now believe that a stress-corroded aileron rod failed in-flight in the Sechelt accident to C-FWAF. I feel that it is important that we work as a team towards safety. There is, we have concluded, a serious material problem and we want to prevent recurrences, therefore I again offer to cooperate fully with your staff."

By letter, dated February 14, 1980, Mr. M.C.W. Davy responded to Mr. T.W. Heaslip as follows:

"Subject: Accident Report - Twin Otter CF-AIV
Reference: Transport Canada letter
5002-H80003 (ASE)

Thank you for your letter of January 25, 1980. I appreciate fully your concern regarding our reluctance to accept out-of-hand the diagnosis of the referenced report. I assure you that our objectives are exactly the same as those you express in the closing paragraphs of your letter, namely, that we work as a team toward safety.

You will appreciate that teamwork does not always preclude disagreement and that in the case of the accident in question we still have difficulty reconciling certain aspects of the accident with the diagnosis given in the report. We have listed these concerns in subsequent letters. Until these have been discussed and resolved mutually we must consider them as remaining doubts. Further, I reiterate our willingness to discuss these or any other relevant aspects at any time."

With respect to the manufacturer, it could hardly be said that it was being asked "to accept out of hand" the diagnosis of Aviation Safety Engineering, having regard to the detailed information being supplied to it. However, it was acting within its legal rights within the framework of the present legislation and was not required to co-operate. It was also under no obligation to accept the analysis made by the Aviation Safety Bureau, or to disclose to them the tests made on its own behalf. I can only assume that in rejecting the conclusion that there was a generic defect in the rods in question, the manufacturer was satisfied that it was able to rely on the engineering evidence to the contrary, and that there was no immediate safety hazard.

Mr. Lorne Tapp, who, as has been noted, was in charge of the accident investigation into the accident at Coal Harbour, and Mr. Terry Heaslip, Chief of Aviation Safety Engineering, both testified in support of the submissions made in their briefs. Their principal concern was that if their words had been heeded, the subsequent fatal accident at Sechelt might have been avoided. They were also concerned that, by reason of what had transpired during the investigation, the independence of the Aviation Safety Bureau was being impugned, and the role of the Aviation Safety Engineering Division minimized. During the Inquiry the manufacturer did not respond to the complaints made by Mr. Heaslip and Mr. Tapp as to its lack of co-operation although given every opportunity to do so.

The Administrator, however, took issue with much of what was stated by Mr. Tapp and Mr. Heaslip. He was under the impression that the manufacturer had been co-operative in the investigation, and that Airworthiness had made a more searching inquiry than the evidence disclosed. He also expressed the opinion that Mr. Tapp and Mr. Heaslip had oversimplified the issues and was critical of their testimony. He appeared to view their criticism of Airworthiness as an act of disloyalty. I must say that I was very much impressed with the evidence of Mr. Tapp and Mr. Heaslip, with their expertise and objectivity, and with their dedication to their task. In my opinion the criticism of them by the Administrator was quite unwarranted.

Sequel

WEST COAST AIR SERVICES LTD., DHC6 CF-WAF
SECHELT, BRITISH COLUMBIA, SEPTEMBER 30, 1979

On September 30, 1979, West Coast Air Services Ltd., DHC6 CF-WAF on a regularly scheduled flight crashed at Sechelt, British Columbia. The pilot and one passenger were killed. A coroner's jury presided over by Dr. W.J. McArthur, of whom much will be said later, was convened. The inquest was held on April 29, 30 and May 1, 1980.

The coroner's jury made the following relevant findings:

> "The crash of CFWAF resulted from the failure of the right aileron rod due to stress corrosion. The rod broke, thereby separating the right aileron from the pilot's control column and also from the normal interconnecting linkage with the left aileron. As a result of this both ailerons went into the up position and the aircraft became uncontrollable. It immediately began a descending turn to the right and crashed.

From the evidence presented, the crew did all in their power to correct the flight of the aircraft. The crew could not have controlled the aircraft nor avoided the crash in any event. We commend the crew for their actions.

CFWAF was properly maintained and inspected according to the Equalized Maintenance Maximum Availability (EMMA) program.

West Coast Air Services Ltd., as owner of the aircraft, properly maintained and inspected the aircraft in accordance with established regulations and procedures.

Mr. Young, on a local level, and Mr. Heaslip, on a more detailed analytical level, provided complete and thorough investigative evidence of the crash, which was fully sufficient for the inquest's requirements and we would commend them on their thoroughness (majority opinion).

The cause of the accident, a stress corrosion crack, was similar in nature to that which caused the crash of CFAIV at Coal Harbour in September of 1978. The component that failed on CFAIV, the flap control rod, was generically the same as the component on CFWAF, the aileron control rod. In July of 1979 officials of the Aviation Safety Bureau became aware of the existence of a similar problem in elevator control rods of the Twin Otter. This information was passed onto the Department of Licensing and Airworthiness with DOT who in turn discussed the matter with de Havilland Canada. It was mutually agreed that the defects in the elevator rods and the potential defects in the aileron rods did not constitute a 'safety hazard' and so no action was taken.

In our opinion the Department of Licensing and Airworthiness within DOT and de Havilland Canada did not act in the best interests of Public Safety.

We note that although the Coroner requested in correspondence to the President of de Havilland Canada, that a technical representative be present at this inquest. The company declined on the basis that evidence produced by DOT technical personnel would suffice for the requirements of this inquest. We feel the presence of a technical representative for de Havilland would have been beneficial and also that the failure to present a technical representative indicates the company accepts the Safety Bureau's findings that the accident was caused solely by the failure of the aileron control rod.

In February of 1980 an Airworthiness directive was issued which properly corrected the defects associated with control surface connecting rods. In our opinion the corrective measure mentioned above sufficiently satisfies the interest of Public Safety (majority opinion)."
(Emphasis added)

COMMENT ON CASE STUDY NO. 3

This case study afforded further evidence in support of the necessity of the establishment of an Aviation Safety Bureau completely independent of the regulatory authority,

and the incompatibility of the Aviation Safety Bureau within the present framework. If the Aviation Safety Bureau had been independent of the regulatory authority, there could have been no interference with its investigation by the Deputy Director-General. The appointment of an ad hoc committee to look into general matters would have been a perfectly understandable step, but the intervention of the ad hoc committee into the investigation of the specific accident under review confused matters and undermined the work of the Aviation Safety Bureau. The manufacturer may also have been in a state of confusion as to whom it should have forwarded the information requested of it, and the opportunity for misunderstanding as to what information was being provided by the manufacturer would have been avoided. The case study also disclosed the necessity of giving broader powers to accident investigators with respect to access to information gathered by a manufacturer consequent upon an accident investigation.

This case study further disclosed the lack of emphasis on continuous monitoring of Airworthiness by the Airworthiness Division following certification and the absence of a continuous Airworthiness Section, which will be dealt with in detail when I report on the subject of Airworthiness. The ready acquiescence of the assurance given by the manufacturer that there was no serious safety hazard with respect to stress corrosion of elevator and aileron rods discloses the inherent danger of the regulated regulating the regulator.

If the warnings as to the generic defect of all magnaformed rods had come to the Airworthiness Division from an independent tribunal, with the procedures in place which I propose to recommend, greater heed would have had to have been given to them, and the fatal accident at Sechelt might have been avoided.

4. CRANBROOK, BRITISH COLUMBIA, PACIFIC WESTERN AIRLINES, BOEING 737, C-FPWC, FEBRUARY 11, 1978

On February 11, 1978 Pacific Western Airlines Flight 314, a Boeing 737, crashed at Cranbrook, British Columbia. Four of the crew and thirty-eight passengers were killed; five passengers suffered serious injuries, and one member of the crew and one passenger escaped without injury.

Cranbrook Airport is operated by the City of Cranbrook under a leasing agreement with Transport Canada. Although it is within controlled air space, it is an uncontrolled airport without a control tower but with an aeradio station providing communication, weather and advisory services by flight service specialists.

This case study will be subsequently referred to when I deal with uncontrolled airports, navigational aids and, in particular, the interrelationship of air traffic controllers and flight service specialists as well as when I report on the relationship of coroners and the Aviation Safety Bureau accident investigators when inquiring into a fatal aircraft accident.

Insofar as the case study relates to the investigation of this accident, it disclosed the culmination of a serious conflict within the Canadian Air Transportation Administration as well as a conflict between the Aviation Safety Bureau and the Department of Justice.

History of the Flight

Pacific Western Airlines Flight 314 was a scheduled Boeing 737 service from Edmonton, Alberta to Castlegar, British Columbia, with stops at Fort McMurray, Edmonton, Calgary and Cranbrook. The flight departed Calgary for Cranbrook on February 11, 1978 at 1932(Z), (all times referred to are Greenwich mean time (Z) - for mountain time subtract seven hours).

The carrier estimated the time enroute as being twenty-three minutes, with an estimated time of arrival at 1955Z, which estimate was passed on to the company agent in Cranbrook. Flight 314 was cleared by Calgary air control to Cranbrook. An air traffic controller in Calgary transmitted the estimated time of arrival (ETA). The estimated time enroute transmitted by the air traffic controller in Calgary to Aeradio at Cranbrook was thirty-three minutes with the resulting estimated time of arrival at Cranbrook 2005Z, being ten minutes later than that forwarded on to the company agent by the carrier.

At Cranbrook it was snowing with visibility reported as three-quarters of a mile, and a radio equipped snow removal vehicle was sweeping the runway. At 1935Z the radio

operator at Cranbrook alerted the vehicle operator about the incoming aircraft and gave him the estimated time of arrival as received from the air traffic controller at Calgary as being 2005Z. They both expected the flight would report by the "Skookum beacon", thus giving the vehicle operator about seven minutes to get off the runway. At 1942Z Flight 314 called Calgary and requested and received descent clearance; it was also given clearance for the approach to Cranbrook. At 1944Z, the flight called out of 18000 feet in the descent, and Calgary ATC advised the flight to contact Aeradio. At 1945Z, Flight 314 made initial contact with Cranbrook Aeradio and at 1946Z Cranbrook passed the latest weather, altimeter and runway information.

The following is a transcript of the communications between Flight 314 and Cranbrook Aeradio, and between Cranbrook Aeradio and the snow sweeper, and between Cranbrook Aeradio and Calgary via the Aeradio Landline:

"1933	L	Cranbrook radio-Calgary.
	L	Cranbrook's on.
	L	I've got an inbound three one four from Calgary at two zero zero five.
	L	Roger, Echo Hotel.
34:05	A	Are you out there, my friend.
34:08	G	Yes sir.
34:09	A	Er - Five past the hour, Terry.
34:11	G	OK. What's the time now, Ernie?
34:13	A	Er - Half an hour from now. Thirty just coming up to thirty five.
34:16	G	OK. Thank you. Everything's working good out here.
34:20	A	That's good.
34:23	G	Can't see you from here, so I don't know whether you're good looking or not.
34:27	A	Oh - take my word for it - I'm good looking.
34:29	G	O.K.

. . . . . .

1946 314 Cranbrook Radio. Pacific Western three one four-er- your frequency.

A Three one four, Cranbrook, go ahead.

314 Yes, sir. We have the approach. You can go ahead with your numbers.

A OK - I'll give you the numbers - the wind at one five zero degrees magnetic at six Cranbrook altimeter two nine - two nine seven six and there's no reported traffic.

1947 314 OK. We check-two nine seven six.

A And three one four. The-er-sweeper on the runway-er-has been for some time trying to keep the snow back for you. I'll let you know what it's like as soon as I get a progress from him. And the visibility - not much change in the weather - maybe visibility about three quarters of a mile in snow.

314 Three fourteen checks.

1955 G Where the hell did he come from?

314 We're gonna crash -

A I don't know Terry, but he sure didn't call after his first call.

L Cranbrook radio, Calgary.

L Cranbrook.

L I've got an inbound for you.

L Standby a second please, I got an emergency.

L Oh. OK.

2004 L Cranbrook Radio, Calgary, are you still busy?

L Aoah, OK go ahead now Calgary.

L OK, first off, where's PW three thirt, three fourteen now, have you any idea.

L Yeah, he's the emergency he's crashed and is burning off the end of the runway.

Legend

314	-	PWA 314	G	-	Snow Sweeper
D	-	Calgary Departure	E	-	Calgary Enroute
T	-	Calgary Tower	A	-	Cranbrook Aeradio
			L	-	Aeradio Landline"

It is to be noted that there is no record of any further transmission between the aircraft and Aeradio or air traffic control following the communication at 1947Z notwithstanding that the flight service specialist had advised the aircraft that there was a snow sweeper on the runway, that he was trying to keep the snow back for landing and the flight service specialist would make a further progress report.

The accident investigation report details the continuation of the history of the flight to its disastrous ending as follows:

> "Evidence indicates the aircraft passed the Skookum beacon inbound on a straight-in instrument approach, and flew the ILS for runway 16 to touchdown. According to witnesses and estimates partially derived from flight data recorder information, the aircraft touched down at 1955Z approximately 800 feet from the threshold and reverse thrust was selected. Reverse thrust was cancelled immediately after touchdown and a go-around was initiated. The aircraft became airborne prior to the 2000 foot mark, and flew down the runway at a height of 50 to 70 feet, flying over a snow removal vehicle which was still on the runway, 2050 feet from the threshold and 20 feet from the right edge. . . . The aircraft climbed to 300 to 400 feet above the airfield, banked steeply to the left, lost height and side-slipped into the ground to the left of the runway. Fire broke out on impact."

In its final report made public on March 29, 1979, the Aviation Safety Investigation Division of the Aviation Safety Bureau with the approval of the Aircraft Accident Review Board made the following findings:

> "3.0 Conclusions (Findings)
>
> 3.1 The estimated time of arrival of the aircraft at Cranbrook, calculated by Calgary ATC, and used by Aeradio for advisory purposes was considerably in error and resulted in a traffic conflict between the arriving aircraft and a vehicle working on the runway.
>
> 3.2 The flight crew did not report by the Skookum beacon on final approach, as was the normal practice at Cranbrook, thereby allowing the incorrect ETA to remain undetected.

3.3 Regulatory provisions concerning mandatory pilot position reporting during instrument approaches were inadequate.

3.4 The interfaces between the organizations providing Air Traffic Services, Telecommunications (Aeradio) and Airports Services were not well enough developed to provide a reliable fail safe flight information service.

3.5 The pilots lost control of the aircraft consequent upon the left engine thrust reverser deploying in flight when the aircraft was at low speed, and in a high drag configuration.

3.6 The FAA design standards under which the Boeing 737 was constructed did not adequately provide for the possibility of an aborted landing after touchdown and thrust reverser initiation.

3.7 The lack of a suitable national system of incident reporting, investigation, and follow-up corrective action allowed operational problems to remain uncorrected.

3.8 Rescue efforts at the accident scene were hampered due to lack of a fire fighting vehicle capable of negotiating deep snow and shortage of trained rescue personnel."

I have already noted that notwithstanding the advisory information given to the aircraft as to the state of the runway and that a subsequent progress report would be made, no further communication between ground and air appears to have been made. The aircraft touched down ten minutes before the estimated time of arrival as provided by air traffic control. The carrier's estimate was correct.

In considering the significance of the estimated time of arrival, the accident investigators made the following comment:

"2.2 Communications

Upon takeoff of Flight 314 from Calgary two ETA's were sent to Cranbrook - each had its particular purpose.

Calgary ATC sent an ETA '2005' which was acknowledged by the Cranbrook Aeradio operator on duty; viewed as an element to control vehicular traffic on the runway, this estimate was in error by ten minutes, since the aircraft touched down at 1955. However, from the point of view of ATC, the estimate was for air traffic control purposes only. The ATC procedures manual MANOPS makes no reference to any other purpose for the ETA other than for traffic separation. The same manual (sec. 392.1) refers to the ETA

as 'estimated time of arrival over the approach aid to be used'. In this sense the ETA generated by Calgary ATC was even further in error.

The airline agent in Calgary also sent an ETA to Cranbrook - to the company agent there. This estimate proved to be accurate. The purpose was to alert the agent in Cranbrook for facilitation of passenger handling. The company ETA had no bearing on the system for controlling ground vehicles on the runway.

The change-over to Cranbrook Aeradio frequency was done well back in the flight, giving adequate time for the transmission of necessary landing information. The message from Aeradio to the Flight at 1947:18 gave multiple intelligence: there was not much change in the weather; the visibility was about 3/4 mile in snow; there was a sweeper on the runway; snow removal was in progress; and update on the runway condition would be given.

The response from the First Officer was simply 'three fourteen checks'. This provides no assurance that he had received the entire message (although the transmission from Cranbrook was loud and clear on the Aeradio tape recording).

There were no other calls either to or from the aircraft during the approach. This indicates that the Cranbrook Aeradio operator was depending on the ETA of 2005 and saw no urgency to give an update on the runway condition, and that he was expecting a call from the aircraft by the Skookum beacon. . . ."

The evidence disclosed that although not mandatory at that time, it was the invariable practice of Pacific Western Airlines' Captains, after receiving clearance for approach from air traffic control, to pass a further position report (Px). At Cranbrook this was usually done by the Skookum beacon. In this case no position report was passed on to Cranbrook. In addition, in light of the advisory information provided to the aircraft, it would seem logical for a pilot to request an update, to inquire into the progress of the snow sweeper, to determine the state of the runway and to determine whether the equipment was clear of the runway. It was apparent that an inquiry had to be made as to why no position report was given notwithstanding the invariable practice to do so and, in particular, in light of the circumstances prevailing at the time.

In the body of the accident report under the heading of Witnesses is the following statement:

"In addition to the above, crews of other aircraft operating in the area during the period of the accident flight were interviewed. Pilots on two different

aircraft reported hearing the Captain of the accident flight conversing with another flight on company frequency. The time of this conversation was established as being about 1948Z, the time the information respecting the runway condition was transmitted by Cranbrook Aeradio."

Also included in the body of the report is the following observation:

"During an instrument approach it is usual for the Captain to monitor all flight deck activities including radio communications made by the First Officer. Evidence indicates that one VHF transceiver was on a Company frequency during the time the Cranbrook landing information was transmitted. The other transceiver was on an Aeradio frequency and the First Officer's voice was identified on the Aeradio tape. It is possible to monitor both VHF transceivers simultaneously, but it appears that the Captain was not aware of the snow sweeper advisory. The Captain had been communicating on Company frequency and the First Officer might not have passed the runway information to him; the First Officer might not have assimilated all the advisory information. A transceiver malfunction seems unlikely since the equipment was operating before and after the time in question.

The failure to report on final approach and the unnecesary talk on company frequency represent an unacceptable standard of cockpit practice and discipline."

Although, as I have noted, there is indicated in the report that the accident investigators had evidence from the pilots on two different aircraft that the Captain of the Boeing 737 was conversing with another flight on company frequency when information as to the state of the runway was being transmitted to the first officer, and the failure to report the final approach and the unnecessary talk on company frequency represented "an unacceptable standard of cockpit practice and discipline", there was no reference in the conclusions that this conduct could have been a contributing cause of the accident.

I should note now that following the testimony relating to this accident as submitted to the Commission, Transport Canada has made mandatory the requirement of a position report (Px) on approach.

Philosophy of the Aviation Safety Investigation Division (ASI) Aviation Safety Bureau

Accident investigators view their function as one designed solely for the purpose of accident prevention. They are anxious to determine the factors which contribute or may

have contributed to an accident with a view to preventing repetition of any of the contributing factors. They resist any assignment of fault for fear that it would impugn their credibility as objective investigators into the facts.

They think that there is a necessity that all information obtained by them be kept confidential and are of the opinion that this confidentiality is essential to the effectiveness of their work. They are convinced that only by assuring confidentiality to persons interviewed can they obtain essential information and are also of the view that only the accident investigation report should be made public.

They desire to be immune from judicial process and resist being subpoenaed to attend a coroner's inquest, to produce documents for the purpose of litigation and to be called as witnesses. Since the Crown is often a litigant in aircraft accident cases, they are fearful that if information obtained by them in the course of the investigation and favourable to the Crown is provided to Crown counsel, they would be viewed as partisan, their integrity impugned and the source of their information would dry up. This view applies equally to information favourable to other litigants, and they hold firmly to the view that litigants should get their information on their own.

The largest single contributing factor in accidents in Canada, as elsewhere, is attributed to error on the part of the pilot or crew. The inquiry as to what may have caused the error is referred to as a human factor inquiry, and in accident investigation there is a human factor team of investigators. In such an investigation persons are interviewed with respect to problems relating to health, habits and conduct of members of the flight crew which could have brought about the error. A practice has developed in many cases that accident investigators would advise those persons being interviewed that they could provide information on a confidential basis, and there would be no breach by the investigators of that confidentiality. In this area particularly, there has been a persistent resistance on the part of accident investigators to disclose information obtained by them in the human factor inquiry since to do so may disclose the source of the information. The depth of conviction amongst accident investigators as to the necessity of confidentiality attached to statements obtained from persons interviewed was such that in one case an accident investigator refused to deliver to Crown counsel, in a prosecution by the Crown for violation of the Aeronautics Act, statements obtained by him in his investigation and, until persuaded to the contrary, was prepared to face

contempt proceedings with the risk of a term of imprisonment. This is a conviction deeply held by accident investigators not only in Canada but elsewhere.

This philosophy was clearly expressed by Mr. Harold Fawcett, Chief Accident Investigator and at times the acting Director of the Aviation Safety Bureau, in an interview with the RCMP under circumstances to be subsequently discussed, as follows:

> "I've philosophized for years about it, and we are in a conflict of interest position with Transport Canada; we're in a conflict of interest position with the Department of Justice; in a conflict of interest position with the Aviation Association. You name it, anybody that becomes involved in an accident, we're in a conflict of interest position and it's extremely difficult in this job to you know walk that fine line up the middle of trying to do this difficult job without fear of failure. Our only objective is to make aviation safety safer for the public. The only way we can do that is to be able to go about our business of finding out what deficiencies led to an accident so that we can feed that information back into the Civil Aviation System in Canada and any involvement in any other process takes us away from our duties and diverts us from our objectives."

Over the latter years the Aviation Safety Investigation Division of the Aviation Safety Bureau has expressed its dissatisfaction with the assistance, or, as they perceive it, the lack of assistance which they have received from the Department of Justice which is regularly assigned to act for the Crown in Crown litigation involving aircraft accidents. They feel that the Department of Justice is not adequately protecting their interests and, in particular, is not assisting them in maintaining the confidentiality of information obtained by them in the course of an investigation. They complain that the Department of Justice counsel should claim privilege with respect to the information obtained by them where such information is being sought in litigation. They have also been seeking for some time to have counsel assigned to them independent of the Department of Justice. What may have been overlooked by them is that since they were an integral part of the Department of Transport, any counsel assigned to them would be in the same position as the Department of Justice counsel.

Department of Justice

The Department of Justice has for many years been aware of the views of the Aviation Safety Investigation Division. Issue has been joined in many cases where the Crown was

a party to litigation as well as where accident investigators were summoned to appear before coroners' inquests.

Mr. John Sims, of the Department of Justice, had been seconded to the Department of Transport and over the last few years had been working closely with the Aviation Safety Investigation Division. He fully appreciated their point of view as was exhibited by part of the following memorandum written by him on July 24, 1978 relating to the objection by accident investigators to produce files requested by a coroner's inquest when he stated as follows:

> "On a more prosaic level, ASI objects to the production of its file materials since it maintains that this jeopardizes the integrity of the entire investigation process. I am sure you are familiar with the argument that the success of accident investigation depends on the confidence which the industry has in the independence of the system and in the belief that information acquired by investigators will be considered confidential. This is especially so for information of an embarrassing or inculpating nature, volunteered by members of the industry in the course of the investigation. If it becomes widely known, or even believed, that the information obtained by ASI will, in every fatal aircraft accident, be automatically delivered to the coroners, whether willingly or by compulsion, then the process will be harmed and future sources of vital information will dry up.
>
> While some others might differ in good faith on the importance to accident investigation of maintaining confidentiality, the investigators themselves are unanimously and sincerely of the view that it is essential. I might add that this opinion is held internationally and even finds its way into official publications of the United Nations body which prescribes standards for international aircraft accident investigation. I would also respectfully suggest that most outsiders are not in a position to challenge the claim that the loss of confidentiality would prejudice effective accident and safety investigations."

However, in a painstaking way the Department of Justice endeavoured to explain to the Accident Safety Investigation Division what the state of the law was and why their demand for confidentiality could not be supported in every case. I think the position was accurately set forth in a subsequent memorandum, dated October 23, 1978, by Mr. Sims to an accident investigator relating to an action which had been commenced against the Crown with respect to an aircraft accident:

> "I can appreciate your resignation and concern that this perennial problem has again arisen. Nevertheless, and regardless of whatever one might think is the

optimum or ideal situation in this regard, quite clearly under existing law ASI must deliver all its files to the Civil Litigation Section as requested by Mr. Sgayias. The present position is as follows. It is the obligation of every party involved in a civil law suit in a common law jurisdiction to locate and produce every document which is, or which has been, in his possession, custody or power relating to any matter in question in the cause or matter. In this particular instance, since there can be no question that your accident files are relevant, the key question is to ask whether documents in your possession are in the 'possession, custody or power' of the Crown for the purposes of the particular suit. Again, since at the present time ASI is an integral part of the Department of Transport and since its Chief reports through channels to the Minister of Transport, there can be little question that files in your custody are files in the custody of this Department and its Minister and must be delivered in accordance with the ordinary rules of civil procedure.

In other words, even if Mr. Sgayias (of the Department of Justice) were to respect your preferred working arrangement and refuse to examine your 'confidential' materials, outsiders (and indeed the Courts) could nevertheless insist that, whether or not he chooses to examine his client's documents, that has no bearing on their right to do so in a proper case.

Once this is recognized, regrettably, there is little that one can do other than to contemplate making a claim for privilege pursuant to section 41 of the Federal Court Act. As you are only too well aware, the Minister, of late, is, as a general rule, exceedingly reluctant to invoke such a claim, largely because recent experience in the Courts has shown that a Court will only rarely accord such a privilege."

Cranbrook Litigation

On August 10, 1978 an action was commenced in the Federal Court of Canada by Pacific Western Airlines consequent upon the Cranbrook crash in which the Crown, and senior officials of the Department of Transport as well as others were named as defendants. As is the practice, the Department of Justice acted on behalf of the Crown and the employees of the Crown.

As required by the Rules of Practice which govern litigation in the Federal Court, the Department of Justice was compelled to assemble all relevant documents and to file an affidavit itemizing those documents which were in the possession of the Department of Transport. This obligation was incumbent upon the Crown as the defendant in the action as part of the discovery process.

Counsel for the Department of Justice did not approach the ASI branch for the production of its relevant material until after the accident investigation report was released. On March 29, 1979, in order to assist the orderly assembly of the documents, the Department of Transport set up a group known as Contingency Plans & Operations (CPO).

On April 2, 1979 Mr. John H. Sims, one of the counsel of the Department of Justice assigned to the defence of the action, wrote to Mr. Charles A. Cowie, the head of CPO, asking him to collect the files in the hands of ASI. As I have noted, Mr. Sims had taken great pains to explain to ASI the obligation to produce all documents and writings in their possession and had explained to them that it was the obligation of the Department of Transport to assemble all such documents, although the Crown could consider asserting a claim of privilege in the litigation proceedings with respect to some of them. However, as Mr. Sims had pointed out, such a claim of privilege could only be asserted with respect to documents which are first identified in the affidavit of production. He had also previously advised them that, as a result of judicial precedents, there was little chance to assert a successful claim of privilege.

On April 4, 1979 Mr. Cowie, at the request of Mr. Sims, wrote ASI and asked them to collect all relevant documents and deliver the same to CPO. Mr. Cowie and Mr. John F. Falvey, also of CPO, were familiar with the resistance of ASI to produce the documents and appeared to be rather sympathetic to ASI's position. Mr. Sims had expected that ASI would at least produce those documents with respect to which there could be no conceivable claim of privilege, but notwithstanding Mr. Sim's prodding, no documents were provided to CPO during this period.

On June 29, 1979 Mr. Sims met with Mr. Fawcett who, as I have pointed out, was Chief Accident Investigator and with one Dr. Dube. Dr. Dube is a specialist in aviation medicine and employed by the Department of Health and Welfare. He is seconded to ASI in major accident investigations and, in addition to medical analysis, assists the accident investigators as part of the human factor investigating team. He has done so in many accident investigations including Cranbrook.

The meeting of June 29, 1979 did not relate to the Cranbrook investigation. It was called to deal with requests made by American lawyers that Dr. Dube attend at a

deposition with respect to an accident which had occurred at the Bay of Fundy. Dr. Dube produced his file relating to the subject matter of the proposed deposition, included in which there was an autopsy report. Mr. Sims advised Dr. Dube that the autopsy report would have to be produced, but both Mr. Fawcett and Dr. Dube took the position that it should not. Mr. Sims left the room during the meeting and, while he was away, Mr. Fawcett and Dr. Dube conferred about the position taken by Mr. Sims. When Mr. Sims returned, he was advised by Mr. Fawcett and Dr. Dube that the file no longer existed for his purposes. Mr. Sims was outraged and put an end to the meeting. Shortly afterwards, he called Mr. Fawcett and told him that he was not to destroy any evidence.

On July 5 Mr. Sims was advised that Mr. Don L. Button, the acting Director of the ASB, refused to turn over any of the ASI files relating to Cranbrook. On the same day Dr. Dube was told that personal notes are evidence and should not under any circumstances be thrown away, and a meeting was held with Mr. Sims, Mr. McLeish, Administrator, Mr. Arpin, Director General, Civil Aeronautics, and Mr. Button. At that time Mr. McLeish directed Mr. Button to see that the files be produced to Mr. Sims.

On July 12 Mr. Sims phoned Mr. Falvey, and Mr. Falvey advised him that ASI would still not give him any of the files.

On July 13 Mr. McLeish called Mr. Sims advising him that Mr. Fawcett was with him and that he had instructed Mr. Fawcett to deliver all the ASI files and told Mr. Sims to go to Mr. Fawcett's office and take possession of them. When Mr. Sims arrived at Mr. Fawcett's office, Mr. Fawcett told him that he could not open the combination lock, and Mr. Sims agreed to go back the following week to get the files.

On July 16 CPO did obtain fifteen volumes of the ASI files.

On that day Mr. Falvey attended on Dr. Dube. Following his visit, Mr. Falvey reported to Mr. Pierre J. Proulx, Director of Air Traffic Services of the Department of Transport and a member of the co-ordinating team assigned to assess the potential liability of the defendants in the litigation, that he ought to see Dr. Dube as soon as he could since Dr. Dube was "shredding the documents". Mr. Proulx reported this to the Department of Justice.

On July 20 Dr. Dube met with Mr. Sims and Mr. W.J. Hobson, a senior counsel within the Department of Justice and in charge of the Cranbrook litigation.

On July 23 Mr. Hobson forwarded a memorandum to the Administrator detailing what had transpired at that meeting and summarizing what had transpired before. Both Mr. Sims and Mr. Hobson testified under oath as to the accuracy of what appears in the memorandum, and the following portions of that memorandum are a helpful summary of the evidence of Mr. Hobson and Mr. Sims in that regard:

> "In the course of meeting with Mr. Huck and his advisers on Wednesday, July 18th, 1979 I was advised that a further meeting was being convened at the request of Mr. Fawcett with Mr. McLeish to discuss further whether or not the Accident Safety Investigation Branch must turn over the remaining files relating to the safety investigation report of the Cranbrook crash. At this meeting Mr. McLeish again directed Mr. Fawcett to turn over all the files to the Department's legal counsel requesting that the files be scrutinized to determine whether or not a proper basis could be found for claiming Crown privilege in respect of those matters raised by Mr. Fawcett. Mr. Fawcett has for some years been the Chief of the Safety Investigation Branch.
>
> At this point I should like to take you back a few days to relate the recent history of the request made by the Department of Justice to produce the Accident Investigation files:
>
> (i) On Friday, July 13th, Mr. McLeish, after discussing the matter at that time with Mr. Fawcett, called Mr. Sims and told him the Accident Investigation files were being made available to him. Mr. Sims went over in the company of another lawyer immediately after that telephone conversation to obtain the files from Mr. Fawcett and he indicated that he could not open his safe but would make the documents available on Monday, July 16th. Certain files were made available on that date.
>
> (ii) By Wednesday, July 18th, Mr. Sims realized that he did not have all of the files in question and once again called Mr. Fawcett to obtain the remainder of these files. Mr. Fawcett refused to hand out any other files or documents and apparently requested Mr. McLeish to meet with him and counsel for DGCT on Thursday, July 19th. I have already related what happened on that date (Mr. McLeish ordered the files to be handed over).
>
> (iii) On Friday, July 20th, Mr. Fawcett had further documents made available to Mr. Sims and Mr. Sims scrutinized these documents between 9:30 and 11:30 a.m. He determined that certain of the documents were still missing and asked Mr. Hobson to discuss the matter with him. Mr. Sims was directed to get Mr. Fawcett on the

phone and ask specifically about numerous documents which would have been in the possession of Dr. Dube (the Medical Adviser to the Safety Investigation Branch for the purposes of this crash).

Prior to the subsequent discussion between Mr. Sims and Mr. Fawcett on July 20th, I had ascertained from Mr. Proulx (the Director of ATC and also an adviser to Mr. Huck on the negotiating team) that there was some suggestion the documents were shredded on Monday, July 16th at a time when Mr. Proulx in the course of determining certain facts for his role as an adviser to the negotiating team was informed by John Falvey of the Department of Transport that he had better get the information quickly as documents were being shredded by Dr. Dube. While Mr. Sims was talking to Mr. Fawcett on the phone I requested Mr. Proulx to get in touch with Mr. Dube immediately (hopefully while Mr. Fawcett was still on the phone) and ask him to attend a meeting with myself, Mr. Sims and Mr. Proulx. During the course of the conversation with Mr. Fawcett he indicated that just ten days ago he had asked Dr. Dube to give him any files that he had and he believed that he had everything in Mr. Dube's possession and had turned it over to Mr. Sims. Mr. Sims suggested to him at my request that documents might have been shredded and I understand that Mr. Fawcett's reaction was one of agitation and thereafter a justification for the process of disposing of information gathered by the Accident Investigation team on the basis that it was to be used solely for the purposes of accident investigation and serve no further use.

Dr. Dube agreed to meet as suggested above at 3:00 that afternoon and while I arrived at the meeting late, it had been made clear to Mr. Sims that Dr. Dube had discussed the matter with Mr. Fawcett prior to arriving at this meeting.

It is also interesting to note that the head of the Accident Investigation team for the purposes of this accident, namely, Mr. Howes, had agreed to attend an earlier meeting with Mr. Sims and other counsel involved in the Cranbrook file for the purposes of discussing the accident but he did not appear at that meeting which had been scheduled for 8:00 a.m. on Friday, July 20th. Instead he directed another member of the Accident Investigation team to appear and it was obvious that that person could not discuss many of the matters raised.

Our discussion with Dr. Dube resulted in him admitting that he shredded the documents in his possession in respect of the Cranbrook crash but he did so last March after the Accident Investigation Report was made public. He took the position that he did not have sufficient space in his filing cabinet and further he did this as a matter of routine. Subsequent questioning of Dr. Dube revealed the following critical information:

(a) Dr. Dube said that the reason for shredding the information was that 'you cannot subpoena what does not exist';

(b) This was not the kind of information that Dr. Dube was prepared to hand over to anybody;

(c) In any event, he was surprised that nobody had questioned what was the real cause of the accident and which they had buried in the Accident Investigation Report.

Upon being questioned very closely on what he meant by what was the real cause of the accident, he finally referred me to page 32 of the Accident Investigation Report and said that the following succinct paragraph on that page was to his mind and the minds of the Accident Investigation team the real cause of the accident:

> 'The failure to report on final approach and the unnecessary talk on company frequency represent an unacceptable standard of cock-pit practice and discipline.'

Dr. Dube said that much pressure was brought by the company and would be brought by any carrier in these circumstances to ensure that this type of comment would not be made as contributing to the cause of the accident.

Mr. Sims and I met with Mr. Falvey this morning at 8:00 and discussed what he knew about the shredding of information in the Cranbrook case. Mr. Falvey reiterated what he had said to Mr. Proulx but said that he could not say for sure that what was being shredded on July 16th was documents or any other information pertaining to the Cranbrook crash but in the context of the conversation he had with Dr. Dube he believed this to be the case.

Mr. Falvey said that Dr. Dube talked about shredding the information as being done routinely and indeed there had apparently been some conversation with Dube some weeks ago in respect of the 'Churchill Falls' accident investigation where the Justice counsel acting on that matter had told Dube that he should not be shredding evidence and Dube once again said it was a routine procedure which he followed.

During the course of our discussion with Mr. Falvey, I put it to him as to whether or not he had ever been in a discussion with Dr. Dube or any other members of the Accident Investigation team about the 'real cause' of the Cranbrook crash. Mr. Falvey was very hesitant in his answer to this question but finally said 'yes we had some conversation and Dr. Dube said 'sometimes its better if they don't know the real cause of the accident' '.

. . .

I am concerned that a pattern of conduct has emerged in the Accident Investigation Branch which must be investigated. My reasons for saying this are as follows:

(1) The Accident Investigation Report in respect of the Cranbrook crash is no longer creditable as it is very suspect;

(2) It would appear that evidence to support the real cause of the accident has been destroyed and might not be made available by fresh investigation;

(3) Allegations of 'cover up', 'non-disclosure' and deceit might well be made against the Department of Transport as the litigation proceeds;

(4) My assessment of the materials which I have read to date lead me to believe that the emphasis contained in the Accident Investigation Report as it presently stands has shifted a far greater burden of liability to the Government than would otherwise exist and to my mind, certain of the recommendations contained in the Report are irrelevant for the purposes of liability but nonetheless are perceived as being the cause of the accident."

As a result of the information received, the RCMP were asked by the Department of Transport to conduct an investigation whether any "evidence" had been destroyed, and Mr. Howes, who had been in charge of the investigating team inquiring into the Cranbrook accident, Mr. Fawcett and Dr. Dube were relieved of their positions and assigned to other work.

I should add that the appropriate inquiry should have been whether any Transport Canada documents in the possession of ASI and relevant to the Cranbrook accident had been destroyed pending the determination of the litigation. Whether such documents were "evidence" could only be determined at the trial of the action. By reason of the instructions given to them, the conclusions arrived at by the RCMP were somewhat unsatisfactory.

Shredding of Documents

Several days of hearings were conducted for the purpose of inquiring into whether any documents or writings obtained by ASI during the course of the investigation of the Cranbrook accident were destroyed while the litigation was pending and, if so, by whom. In this phase both Mr. Fawcett and Dr. Dube were ably represented by counsel; Mr. David Stinson and Mr. David Cousins respectively.

Dr. Francois Dube

As I have already noted, Dr. Dube is a specialist in aviation medicine and as such is very highly regarded. He conducts many tests on persons killed in aircraft accidents, and, as a result of such studies, valuable information is obtained which often assists in

determining the probable cause of accidents and other information which would assist in accident prevention. He also tests the equipment within the aircraft such as seat belts and materials used in the interior of the aircraft and so forth. He is also, as has been observed, often assigned to a team of investigators who inquire into the human factor.

In the Cranbrook investigation, in addition to the technical medical research performed by him, he was part of the human factor investigating team. That team's function is to inquire whether any error on the part of pilot or crew could be attributed to matters personal with respect to such pilot or crew. Although concerned about the confidentiality of all information obtained in the course of the investigation, accident investigators are particularly sensitive about disclosing the source of information of matters personal to pilot or crew, and Dr. Dube shared that conviction.

In Mr. Hobson's memorandum, which I have set out above, he notes that Dr. Dube admitted that he had shredded documents in respect of the Cranbrook crash, and the reason for shredding the information was "that you cannot subpoena what does not exist" and also "this is not the kind of information that he was prepared to hand over to anybody". Mr. Hobson and Mr. Sims confirmed under oath that which appears in the Hobson memorandum. Mr. Hobson also testified that in the meeting with Dr. Dube, he and Mr. Sims spent over an hour inquiring of Dr. Dube what documents had been destroyed, and from the information obtained from Dr. Dube the following list of documents was obtained:

"Missing Documents

1. Pilot survey material.

2. Statement from senior (?) P.W.A. official criticizing management.

3. Statement from (presumably) other P.W.A. flight crew about the Captain's conversation(s) on the company frequency.

4. Notes concerning the firing of the first officer.

5. Autopsy notes dictated by Dube during the performance of the autopsies and recorded by the coroner who was in attendance at this time. These autopsies were of the flight crew and the dead stewardesses as well as of certain passengers.

6. Photographs of the bodies taken by Dube during the examination and autopsy phase.

7. Biochemical laboratory reports on tissue samples taken from the bodies and done for ASI by DCIEM in Toronto. These results were recorded in respect of alcohol blood levels, carbon monoxide levels, cyanide levels, lactic acid levels, and drugs. (Some of these tests were also performed in a laboratory in Vancouver.)

8. Autopsy report (not precisely the same as #5 above) which were typed summaries of the cause of death of the people on Flight 314, prepared by the Coroner working for Dr. Askey.

9. Additional pictures taken by Dr. Dube, not related to directly to the bodies, but to the environment of the crash scene. Together with the pictures taken about the bodies, these totalled about 10 rolls or so.

10. plot analysis, done by RCMP and ASI together.

11. Statements taken by the R.C.M.P.

12. Pictures taken by the R.C.M.P.

13. Statements from about 10 or 12 P.W.A. flight crew, or notes of these conversations and interviews, taken by Dube and Poole primarily, but also by Dube and other D.O.T. personnel.

14. P.W.A. training records and personnel files relating to the dead flight crew (copies). (Approx. 2").

15. Notes on interviews or talks with senior P.W.A. personnel such as Franzbergen, Revel, Mackie and 'others'.

16. Notes on conversations with the personal physicians ot the dead flight crew. Perhaps medical records too.

17. Notes from conversations with the families of the dead flight crew.

18. Notes about observations taken from the Personnel Licencing files at Ottawa.

19. Notes of conversations with the passengers who survived.

20. Histology reports done by local hospital in Cranbrook.

21. X-ray photographs may also have been in the file at one time, although we are unsure of this.

22. Documents recording the analysis of the length or duration of survival of those passengers who survived the impact but who subsequently died of smoke inhalation.

23. Draft reports or summaries of the conclusions of the medical findings."

Dr. Dube told Mr. Sims and Mr. Hobson that those were the documents which he had in his possession and had destroyed, and he indicated that they comprised a pile about fifteen inches high. Dr. Dube testified that he understood that Mr. Sims and Mr. Hobson were asking him what documents he had had and others had had. He stated that he understood that they were questioning him as to what documents were collected as a whole. It was Dr. Dube's evidence before the Commission that the list of documents obtained by Mr. Hobson and Mr. Sims were documents that generally would be gathered in accident investigation, and he did not know whether they in fact existed or not. Since the purpose of the interview being conducted by Mr. Hobson and Mr. Sims with Dr. Dube was to ascertain whether documents had been destroyed and, if so, which documents, I cannot help but believe that Dr. Dube did in fact tell Mr. Hobson and Mr. Sims that the documents that were destroyed were those set forth in the list, and that the documents listed had at one time been in the possession of Dr. Dube or the other accident investigators.

It is to be noted that, in the interview with Mr. Hobson and Mr. Sims, Dr. Dube stated that any documents that were destroyed were destroyed in March following the completion of the accident investigation.

On July 24, 1979 Dr. Dube was questioned by Sergeant Luc Joseph Albert LeGal and Corporal James Edward Butler of the RCMP. Their first interview was a lengthy one, and Sergeant LeGal and Corporal Butler found the initial interview to be quite incomprehensible, a difficulty that I shared with respect to much of the testimony given before me by Dr. Dube. Following the lengthy interview with the officers of the RCMP, Dr. Dube conferred with Mr. Button, his superior. Sergeant LeGal testified that when Dr. Dube returned from the meeting with Mr. Button "he then wanted to tell the truth" and gave the following signed statement to Sergeant LeGal and Corporal Butler:

> "Fawcett told me to get rid of pertinent stuff on the file which the public has no need to know. 'The biggest bulk of the destruction is lately' - 'Fawcett called me in his office and said destroy your stuff'. I destroyed most of my stuff as a result of what Fawcett told me, although a lot of the stuff had been destroyed before. I was alone with him in his office. I think he might

deny it. This occurred at the beginning of July. I did that to listen to the orders of my boss and my own partial conviction. Concerning the latter, I'm referring particularly to the material that's obtained through the authority of the Coroner and the psychological factors concerning the persons involved in the accident especially the crew, more so if they have no relevance to the accident and will not be referred in the report.

For example, if the person has a disease such as acute gout but a wing breaks off due to corrosion defect, gout is then not a factor in the accident and would not be referred to."
(Emphasis added)

It is to be observed that although Dr. Dube told Messrs. Hobson and Sims that the documents which he destroyed were destroyed in March, in his statement to the RCMP he said "the biggest bulk of the destruction is lately", i.e., at the beginning of July, and at a time when he knew that the Department of Justice was seeking the files by reason of the pending litigation.

The instructions from Mr. Fawcett referred to by Dr. Dube followed the meeting that I have detailed above with Mr. Sims on June 29 when Dr. Dube and Mr. Fawcett refused to produce the file relating to the Bay of Fundy accident. Following the meeting with Mr. Sims, Mr. Fawcett and Dr. Dube discussed the general problem of the protection of documents, and there is no doubt that Mr. Fawcett gave instructions to Dr. Dube which could reasonably have been interpreted by him as a direction to destroy the Cranbrook documents. With respect to the conversation with Dr. Dube, Mr. Fawcett stated:

"I am certain I made a statement something to the effect that well, I guess we have to get rid of that material, thinking in the same terms as disposing of air traffic control tapes and so on, as laid down by the manual."

Dr. Dube testified that the conversation on the way back to Mr. Fawcett's office following the meeting with Mr. Sims did not refer specifically to Cranbrook. He said:

"The Cranbrook was never mentioned, but I took it to mean everything else that you didn't need any more for either your research purposes or other purposes; after the accident get rid of it, including all accidents."

As has been noted, this was at a time when ASI had been asked by the Department of Justice through CPO to produce all relevant documents relating to the Cranbrook litigation.

It is of particular significance that in his statement to the RCMP Dr. Dube referred to "the psychological factors concerning the person involved in the accident especially the crew. More so, if they have no relevance to the accident, it would not be referred in the report". It is to be recalled that in Dr. Dube's meeting with Messrs. Hobson and Sims he stated that "he was surprised that nobody had questioned what was the real cause of the accident and which they had buried in the Accident Investigation Report". When being questioned as to what he meant when he referred to the real cause of the accident being buried, he referred Messrs. Hobson and Sims to the following paragraph of the Accident Investigation Report:

> "The failure to report on final approach and the unnecessary talk on company frequency represent an unacceptable standard of cockpit practice and discipline."

I have already noted that there was no reference in the findings of the Accident Investigation Report that the "unnecessary talk on company frequency", which has been noted occurred at a critical time, could have been a probable cause of the accident.

While working as part of the accident investigation team, Dr. Dube prepared a draft of an introduction to the Accident Investigation Report. Christopher Miles was the Captain of the Pacific Western Airlines Flight 314, and Peter Van Oort was the first officer. Included in the draft prepared by Dr. Dube are the following pertinent paragraphs:

> "According to the aeradio tapes both from Calgary and Cranbrook aeradio, it would appear that Peter Van Oort was doing all the communications.
>
> The other aircraft flown by Bud Husband took off from Calgary at 46 past the hour. Shortly after take-off he continued the previous conversation they had started on the ground with Christopher Miles. They chitchatted about the dispatcher on the ground who apparently is a beautiful lady. Also Bud Husband inquired of Christopher Miles some tips on the stock market since the latter was some sort of authority on this matter. That lengthy conversation took place at the same time as Van Oort was receiving instructions from the aeradio station operator about weather conditions and in particular about a snowblower on the runway. The latter had acknowledged these adviseries.
>
> Also during the period of time the aircraft would now intercepting the ILS approximately 9 to 10 miles from the airport. It is quite probable that Peter

> Van Oort never advised Christopher Miles about the snowplow and the latter first noticed the equipment on the runway probably at touchdown.
> . . .
>
> Analysis
>
> All pilots in the company are trained to overshoot when 'truck on the runway' is seen so that upon seeing the snowblower on the runway the crew initiated a go around as a conditioned reflex. Since the first officer acknowledged the advisories from the aeradio operator and the captain was presumably flying the aircraft it would appear that the latter may not have been made aware of the snowblower on the runway until he saw it just before or at touch down."

It is apparent that Dr. Dube attached great significance to the conversation that the Captain was having at this critical time on company frequency, and from his point of view it could not be said that that conversation was irrelevant.

I have already noted that in the Accident Investigation Report there is a reference to "Pilots on two different aircraft reported hearing the Captain of the accident flight conversing with another flight on company frequency." The time of this conversation was established as being about 1948Z, the same time the information respecting the runway condition was transmitted by Cranbrook Aeradio.

In his testimony Dr. Dube claimed that he had no notes of any interview with the two pilots on the two different aircraft referred to in the Accident Investigation Report as having overheard the conversation on company frequency. He was also unable to explain from whom he learned the details of the conversation as set forth in his own draft report with respect to the discussion of "a beautiful lady" and "some tips on the stock market". As will be noted later, no notes or memoranda of any such interviews were ever produced by ASI, and no one within ASI acknowledged ever having received such information or indicated from whom such information may have been obtained.

It is already noted that Dr. Dube testified in his own behalf. Although admittedly a very brilliant man in the field of aviation medicine, as a witness I found him to be quite unconvincing, and his testimony quite confusing. Giving his testimony the most favourable assessment, it appears that his contention was that any documents destroyed by him gathered in the course of the investigation of the Cranbrook accident were destroyed as part of his normal routine to dispose of material when its usefulness was

finished and that, as a result of the instructions received from Mr. Fawcett, he merely speeded up the destruction of documents which would have been destroyed in the normal course of events. Although admitting making the statement to the RCMP, he indicated that what he was trying to explain was that the only documents which were destroyed were those "that he regarded as irrelevant". He did admit that as a result of the conversation with Mr. Fawcett he reviewed what was left of his accident files including the Cranbrook one and destroyed material from those files including copies of autopsy reports and draft reports. He stated that the early destruction which occurred in March included copies of notes that he had taken and had transcribed, transcripts which were not useful, a copy of a statement taken from the stewardess on the aircraft and a copy of the survey plot. It is manifest, even from his own evidence, that information obtained by him in the course of the Cranbrook investigation was in fact destroyed, and at a time when he knew that he was under an obligation to produce such documents to the Department of Justice.

Where his evidence conflicts with that of Messrs. Hobson and Sims and the officers of the RCMP, I have no hesitation in preferring their evidence to his. I was impressed with the meticulous and careful way in which they have presented their evidence and of the restrained manner in which it was delivered.

I have no doubt that Dr. Dube advised Messrs. Hobson and Sims that he had destroyed the documents above set forth as the list of missing documents. However, since some documents were obtained from Dr. Dube and others from ASI following that conversation, I am not satisfied that he had in fact destroyed all the listed documents. Since he is the only one who knew what documents were in his possession and since his evidence as to what documents were destroyed by him is so unsatisfactory, it is impossible to say with certainty what documents were destroyed by him. Having regard to the very meticulous way in which he carried out his work, I am satisfied, however, that he would not have included in his draft report the details of the conversations referred to as having taken place by the pilots on company frequency at the critical time unless he was in possession of witnesses' statements to that effect.

I do not regard the identification of the actual documents destroyed as being particularly significant. The important consideration is that the documents which were destroyed

were in his possession and may have been relevant to the litigation. The documents were not his. They were the property of the Department of Transport. I do not believe him when he claimed that he believed that the documents which he destroyed were irrelevant in light of his own testimony and conduct. Be that as it may, it was not for him to make that determination. Whether the documents in his possession ultimately became evidence at a trial was for the Court to determine. I am satisfied that he destroyed all documents in his possession which related to that part of the investigation of the accident as it affects the human factor inquiry as well as others. I can understand his reticence in producing autopsy reports, although obligated to do so, which he may have felt came to him on a confidential basis, but there can be no excuse for the destruction of the other documents. The evidence disclosed that it was not the first time that Dr. Dube had destroyed documents.

Filed as an exhibit is a memorandum from Mr. Sgayias, a counsel with the Department of Justice already referred to. In his memorandum Mr. Sgayias sets forth the following account of discussions he had with Dr. Dube when he attended with him before a Magisterial Inquiry investigating the crash of an aircraft at St. John's Airport as follows:

> "On July 6, 1979 Dr. Dube gave testimony before the Magisterial Inquiry into this crash being held at St. John's. In discussing the matter with Dr. Dube beforehand he indicated that he did not have any notes or files with him. Dr. Dube subsequently indicated that he had thrown away all his notes after the Accident Report had been written. I indicated to him that such notes and reports were evidence and should not in the ordinary course of things be thrown away while the prospect of inquests and court actions remained. Dr. Dube indicated that he was only interested in finding the cause of the accident, and after the report is written he had no use for the notes and other file material and no place to store them.
>
> On July 7, 1979 I had occasion to travel with Dr. Dube on the return to Ottawa. During our conversation, Dr. Dube mentioned that there were certain things which could not be put in an accident report because they would raise questions which might lead to confidential sources of informtion. With respect to the accident in question, Dr. Dube indicated that during his investigation he had had conversations with other pilots and with friends of the deceased pilot of Aircraft C-GGAL which had led him to information which confirmed his conclusion that the cause of the crash was disorientation on the part of the pilot. I told Dr. Dube that he had led me to the last page of the mystery and I asked him for the ending of the mystery. He said that he was not able to tell me that because that would disclose his source."

Mr. Harold A. Fawcett

Mr. Fawcett, Chief Accident Investigator of the Aviation Safety Bureau, is a delightful gentleman and an intelligent and able accident investigator.

For many years he held firm to the view that accident investigators should be held aloof of the litigation process. He resisted accident investigators being called as witnesses at trial and resisted their production of documents in the litigation process. He had similar objections with respect to the attendance of investigators and production of documents at coroners' inquests. He stood steadfast to the ASI philosophy, which I have detailed above.

He was convinced that accident investigators should be permitted to act in isolation, and to go about their job inquiring into the circumstances of the accident for the purpose of determining what could be learned from that accident with a view to accident prevention in the future.

He was convinced that confidentiality should be attached to the information obtained by accident investigators, and that litigants and coroners should obtain the information they sought on their own. He was dissatisfied with the advice given to him by the Department of Justice. In particular, he felt that if the information obtained by him could be obtained by others, by destroying the statements in his possession he was not destroying evidence. He felt that he was free to refuse to turn over documents where such documents were available from another source. This subject was canvassed in Mr. Fawcett's interview with the RCMP when they were called in to investigate the alleged destruction of documents when he stated as follows:

"Fawcett: Okay, if we have talked to a witness and he has given us some information, and that witness is living, we haven't destroyed evidence. Because we talked to him about safety matters, we didn't talk to him about . . . .

Legal: Then to be more specific is that if somebody told you something, he is still living, you have obtained a statement from a particular person, and if you destroy that statement, you are destroying evidence because that statement can be reobtained from that living person.

Fawcett: That's right.

Legal: Is that what you're saying?

Fawcett: That's right and as a matter of fact it might be unfair of someone to try to use the statement given to us for other purposes because we ask certain specific questions. We are not legally trained people and if someone was asking questions for the purposes of establishing liability, they perhaps would ask the witness somewhat different questions and use somewhat different interview techniques."

Mr. Fawcett was of the opinion that unless an accident investigator could assure confidentiality and anonymity to those persons being interviewed, valuable sources of information would dry up, and as he put it in his testimony:

> "The main loss of information will be in the human factors area, and since human factors now constitute approximately 75 per cent of accident cause related factors, then our potential for reducing the accident rate will be substantially impaired."

Although pursuing his philosophy for many years, he had been unsuccessful in persuading the senior officials of the Department of Transport or the Department of Justice as to the correctness of his point of view, and it is clear to me that he decided that the battle line had to be drawn at Cranbrook.

I have already noted the instructions given by Mr. Fawcett to Dr. Dube following the meeting that he had with Mr. Sims and Dr. Dube on June 29, 1979 relating to the accident at the Bay of Fundy. Mr. Fawcett admitted that the words used by him were capable of being interpreted by Dr. Dube as an instruction to destroy all the documents in Dr. Dube's possession relating to the Cranbrook investigation. He also testified that in general conversations with accident investigators other than Dr. Dube he used language such as "What are we going to do with this material? We had better get rid of it". When it was suggested to him that other investigators may have construed it as an instruction to destroy material, Mr. Fawcett agreed that that was a possibility. Mr. Fawcett stated, however, that he intended that Dr. Dube and other accident investigators to whom he had spoken destroy only those documents, copies of which were available from other sources.

Mr. Fawcett further admitted that he had in the past when discussing the matter of production of documents with his accident investigators used an expression such as "whatever you don't have in your possession, you cannot be subpoenaed for", which is an expression similar to that made by Dr. Dube in his meeting with Messrs. Hobson and Sims.

Whatever Mr. Fawcett's intentions were, it is quite clear to me that out of a sense of pique or frustration instructions were given not merely to Dr. Dube but also to other accident investigators that documents relating to the Cranbrook investigation should be destroyed rather than being handed over to the Department of Justice, and at a time when Mr. Fawcett was well aware that the Department of Justice required production of such documents. The words used by him were not limited to those documents with respect to which other copies were available.

Mr. Stinson, in his very able submissions in support of Mr. Fawcett's position, attributed Mr. Fawcett's action to be the result of the lack of clear direction within the Department with respect to the production of documents and the uncertainty within ASI as to the application of the rule of privilege to such documents. With respect, I cannot accept that submission. The record before me makes it abundantly clear that Mr. Fawcett was fully apprised of the duty imposed upon him to produce documents for the purpose of litigation including those documents with respect to which a claim of privilege might be asserted.

Mr. Fawcett had sought to have counsel assigned to the Aviation Safety Bureau from outside the Department of Justice but, as I have pointed out, any counsel in that position would be under the same obligation as counsel assigned for the Department of Justice since the Aviation Safety Bureau was an integral part of the Department of Transport. Mr. Fawcett evidenced a suspicion that the Department of Justice counsel would take unfair advantage of the information provided to them by the Accident Safety Investigation Division to the prejudice of the other litigants. I am satisfied that that suspicion is clearly unfounded. I was impressed with the integrity of all counsel within the Department of Justice who appeared before me. They sought the production of all documents relevant to the litigation whether the documents were helpful to the Crown's case or to their opponents, and it was their duty to produce all such documents.

Mr. Fawcett also overlooked the fact that the documents obtained during the course of an accident investigation are the property of the Department of Transport and are not the personal belongings of the accident investigators. He was completely unjustified in giving instructions which were reasonably interpreted as being a direction to destroy such documents. He was also in error when he said that a witness' statement could be destroyed if the witness were still alive and could be subsequently examined by others. He was operating under a misconception that if a statement had been obtained from an individual who was still alive and who could be questioned independently of the ASI, that such statement could be legitimately destroyed. It is well known that people make contradictory statements and often have a change of mind. The original statement taken by an accident investigator may be a very material piece of evidence to determine the truth. Even if copies of the documents were available in other hands, the very fact that the documents were in the possession of ASI is often, in itself, important in litigation and affords no justification for its destruction pending the determination of the litigation.

It is quite clear that witnesses' statements were in fact destroyed.

Mr. Clyde Johnson was one of the accident investigators inquiring into the Cranbrook accident. He testified that he was satisfied that he had made summaries of interviews that he had with three witnesses and that he gave those summaries to Mr. R. S. Poole, one of the other accident investigators. Mr. Poole confirmed that he had received the summaries, and that he put them on an ASI file. During the course of the Inquiry Mr. Johnson was asked to examine the ASI file referred to and confirmed that his summaries were not there.

Captain Bud Husband was the pilot with whom Captain Christopher Miles had the conversation on company frequency previously referred to. Both Mr. Howes and Mr. Poole testified that there was a transcript of the taped interview with Captain Husband. The transcript of this conversation, which now exists, is one produced by the Department of Justice from Mr. Poole's copy of the tape, which was found by the RCMP in the ASI office. The tape of Captain Husband's interview, which is now in the possession of the Department of Justice, is a copy. The original is still missing.

There is no evidence that Mr. Fawcett himself destroyed the documents and/or other material, but the responsibility for the destruction of relevant material which did in fact take place must be attributed, in part at least, to the instructions given by Mr. Fawcett to Dr. Dube and others.

Mr. William M. Howes

Mr. Howes was the accident investigator in charge of the Cranbrook investigation team and responsible for the draft of the final Accident Investigation Report. He was aware of the reference in the report to the fact that two pilots were said to have overheard Captain Miles' in-flight conversation on company frequency.

He expected that he would be questioned with respect to this matter when he appeared before the Aircraft Accident Review Board for their audit before the report was made public. Although he did not know the names of the two pilots referred to, he stated that before appearing before the Aircraft Accident Review Board with his report, he was confident that his team had the names of those two pilots and that he could produce them before the Aircraft Accident Review Board, if needed. He thought the names were in the possession of Mr. Johnson and could be obtained from him if necessary. Mr. Poole, the Operations Group Chairman, testified that Mr. Johnson had the names, but that he was unaware of them and never had them. Mr. Johnson testified that he never had the names, but that he would have made a note of the names and what the pilots told him if he had received the information. Notwithstanding the examination by Commission counsel of all those who may have had that information at one time, it was never forthcoming. It does not appear that the Aircraft Accident Review Board pursued the matter.

The copy of the taped interview with Captain Husband does not disclose the details referred to in the Accident Investigation Report, and thus ASI has lost the opportunity to otherwise substantiate a possibly key factor.

However, I am satisfied that neither the Accident Investigation Report nor Dr. Dube's draft could have been written unless witnesses' statements from the two pilots had at one time existed, and that at one time both Dr. Dube and Mr. Howes had them.

There is no suggestion that Mr. Howes destroyed any documents or any other relevant information, and I am not satisfied that he was aware of the destruction. It is apparent that his reliance on the accident investigators was misplaced.

COMMENT ON CASE STUDY NO. 4

This case study disclosed a serious breakdown in the accident investigation procedures. The purpose of an investigation into an aircraft accident by the Aviation Safety Investigation Division is for the promotion of aviation safety and to identify the need for preventive action.

As a preface to every report published by the Aviation Safety Investigation Division is the following note:

> "This accident was investigated to provide guidance toward the prevention of a recurrence. The content of this report is confined to relevant circumstances and is published for accident prevention purposes only."

ICAO International Standards and Recommended Practices. Annex 13, Aircraft Accident Investigation, to which this country has not filed a difference, provides in part as follows:

> "3.1 The fundamental objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability.
>
> 5.4 The investigation shall include the gathering, recording and analysis of all available relevant information, if possible the determination of the cause(s), and the completion of the Final Report followed, if appropriate, by Safety Recommendations. When possible the scene of the accident shall be visited, the wreckage examined and statements taken from witnesses."

Included in the Aviation Safety Bureau's brief submitted to the Commission is the following statement of objective:

> "The most important purpose of accident investigation is to determine the cause or probable cause of an accident, with a view to taking action to prevent accidents from similar causes in the future."

It is thus essential for ASI to determine the cause of an accident, looking at all relevant information, even though it is not to apportion blame or liability. To preclude examination of a potentially substantial contributing factor, for whatever reason, is inconsistent with ASI's professed objective and inconsistent with ICAO's standards to which Canada is a party.

In his submissions with respect to the Cranbrook case study, Mr. Sopinka, in my opinion, accurately stated as follows:

> "The evidence has shown that the question of privilege has been the source of a long standing conflict or dispute between Department of Justice lawyers and ASI investigators. While the lawyers have been concerned with the legal requirements on the production of documents, ASI investigators have felt constrained to try and protect the confidentiality of information gathered in the course of their investigations. This confidentiality has been seen by ASI to be essential to the effectiveness of their work. It is a conflict which, I submit, in the Cranbrook case resulted in the intentional destruction of documents."

An accident investigation report does not determine the rights of any person or persons who may have been involved in an aircraft accident. Only the courts can make such a determination and they do so on the basis of legally admissible evidence after the validity of such evidence has been tested at trial. The accident investigator is free to obtain information on a broader basis, and for his purposes can rely on evidence which would not necessarily be admissible or accepted in a court of law. However, if the function of accident investigation is to prevent accidents, every factor which has the potentiality of having been a contributing cause to an accident or a future accident must be inquired into.

It is important that the public has confidence that the accident investigator thoroughly pursues the matter, and that all potential causes of accidents are carefully inquired into.

I will have occasion later to discuss the matter of confidentiality and the validity of the ASI philosophy which brought it into conflict with senior management and the Department of Justice in the investigation of the Cranbrook accident as well as many other accidents, and to consider whether there should be a change in the law to permit accident investigators to carry out their duties in a manner that they would prefer.

It is clear, however, that the Department of Justice accurately advised ASI as to its legal rights and obligations according to the present state of the law, and some of the features of the philosophy of the ASI are quite incompatible with the legal obligations presently imposed upon them. It was the resistance to the legal obligations which prevail that brought about not only the destruction of documents but also the complete insubordination by those who refused to act as their duty required.

Also, the obsession of ASI with respect to confidentiality, which they thought had to attach to their human factor inquiry, may have deflected them in this case from examining a substantial factor in the accident.

As I have stated, the court is the ultimate arbiter as to the actual cause of the accident in the event that pending litigation is pursued, but for the purposes of accident prevention it was incumbent upon the investigators to inquire into all matters which would appear to them could have been a contributing factor to the accident under investigation or to some future accident, so that remedial action could be taken. This is important in all cases since the investigation may disclose remedial action which could prevent an accident in the future even if in fact it was not the cause of the accident under inquiry.

The in-flight conversation on company frequency was a factor which I think clearly had to be pursued since it may have explained the failure of the crew to report their position on approach and to make further inquiries as to the state of the runway, having regard to the information provided to them. Its significance was clearly apparent to Dr. Dube, and yet there is no reference to it in the findings set forth in the Accident Investigation Report, and it is only to such findings that such future remedial action is directed.

Whether the in-flight conversation as described in Dr. Dube's draft report did in fact take place and whether it had a causal connection to the fatal accident is a matter that only the court hearing the action can determine. However, it was most appropriate for Crown counsel to pursue the matter in the defence of the action brought against the Crown and Crown employees. The conduct of the accident investigators quite improperly impeded Department of Justice counsel in their defence. It would have been

equally important if the information destroyed would have assisted the other party or parties to the litigation.

I was particularly impressed with the ability and dedication of all the accident investigators who appeared before me and of their desire for credibility. Their conduct in this case, however, destroyed the very credibility that they were seeking to establish, and the report, as submitted by them, now lacks credibility. Its credibility is lacking because statements are made in the report which the Investigator-in-Charge, Mr. Howes, would have been unable to substantiate in the review before the Aircraft Accident Review Board, if called upon to do so, and was unable to substantiate before the Commission.

This case study provided me with further evidence as to the necessity of the creation of a completely independent tribunal, an objective long sought for by the Aviation Safety Bureau. The creation of such a tribunal in the manner which I will subsequently propose will, I think, remove many, if not all, of the major complaints of the accident safety investigators with respect to their present position, resulting in a greater contribution to aviation safety in the future.

I have already commented on Mr. Fawcett's conduct. He was in large measure responsible for the destruction of materials which were the property of the Department of Transport, the destruction of which impeded the proper conduct of the Department of Justice in the defence of the Cranbrook litigation as well as impugning the credibility of the accident report itself. It also constituted complete insubordination, and his failure to comply with the request of the Department of Justice and the instructions of his superiors was quite unwarranted. They were conducting themselves as they were required to do by the rules which govern the judicial proceedings then pending. However, I am satisfied that his conduct cannot be attributed to any criminal or fraudulent intent. He acted in this misguided way because of his conviction that in so doing he was promoting the cause of aviation safety. He is a very dedicated, able investigator and highly regarded by his colleagues.

In his evidence before the Commission, he concluded as follows:

> ". . . I still feel the same way, and I think we have to have some very definitive legislation to enable us to carry on with this job, and I think that lack of legislation had a great deal to do with what led up to the Cranbrook situation.
>
> Notwithstanding that, I would like to say, sir, that any decisions that I have made, that either harmed any individual or caused this Commission to have to involve itself in a lot more detail than it would otherwise have had to, I regret very much. I am sincerely sorry."

I am satisfied that his apology was sincere. In the event that a new independent tribunal is established and the rules governing his conduct are clearly set forth, I am confident that Mr. Fawcett could play an important role, and that he will conduct himself pursuant to the directions given to him by the new tribunal. At least he should be given a chance to do so in my opinion, and it would be unfortunate if we were to lose his talent without affording him that opportunity.

It is my recommendation that no further proceedings be taken against him, and in the event that a new independent tribunal is established, Mr. Fawcett should be assigned to that tribunal.

With respect to Mr. Howes, because he was the Investigator-in-Charge and responsible for the Accident Investigation Report, the Administration had no alternative, in light of information which came to them, but to remove him from his duties as well. However, for the reasons already set forth, there is no reason to consider any further disciplinary action in his case.

As is the case with Mr. Fawcett, I am satisfied that Dr. Dube had no criminal or fraudulent intent in conducting himself as he did. He acted, as he stated himself, partly by reason of the orders given to him and out of a sense of conviction. These are mitigating factors, although not exonerative of his conduct, and I would recommend that no further disciplinary action or other proceedings be pursued with respect to him. I regret to say, however, that notwithstanding the very persuasive submissions of Mr. Cousins to the contrary, I do not think that Dr. Dube would be able to follow any instructions which were not to his liking. I gained this distinct impression by listening to

his evidence and observing his demeanour as a witness. He is employed by the Department of Health and Welfare and is an expert in aviation medicine. I think that his work in the future should be limited to the field of aviation medicine, but that he should not form part of an accident investigation team.

The examination of the procedures adopted in the investigation of the Cranbrook accident and the conflict which arose in the related litigation has assisted me not only in concluding that there must be an independent tribunal, but also in arriving at my recommendations as to the nature of the tribunal I think should be established including its composition, objectives, jurisdiction and procedures which it should follow.

PART IX

AN INDEPENDENT TRIBUNAL

INTRODUCTION

This phase of the Inquiry demonstrated to me the need of a tribunal independent of any department of government.

An examination into the organization of the Canadian Air Transportation Administration disclosed the incompatibility of the Aviation Safety Bureau within that organization. The resentment of the Air Administration to criticism from within, resulting in resistance to recommended action, has inhibited the effectiveness of one of the most important functions of the Aviation Safety Bureau.

There is admittedly the appearance of a conflict of interest where the investigative agency is part of the regulatory authority. Furthermore, the Air Administration is far more than a regulator but, for practical purposes, has also the responsibility of enforcing the regulations, is a licensor, a supplier of a multitude of necessary services and facilities, and a litigant when Her Majesty the Queen is sued in right of the Department of Transport.

Thus, there is a potential for a conflict of interest for the accident investigator with respect to all these activities, and the very appearance of such a conflict casts a shadow on the credibility of the Aviation Safety Bureau and diminishes the public acceptance of its worth.

Moreover, the case studies show that the problem is far more deeply rooted than a mere appearance of a conflict of interest. The studies showed not merely the appearance of a conflict of interest but, on occasion, an actual conflict of interest as well as an internal conflict, all of which diminishes the role of the Aviation Safety Bureau in an aircraft accident prevention program.

It is to be observed that only in the United States has there been a tribunal established which is completely independent of any department of government. In Australia and in

New Zealand, the accident investigation authority with respect to aircraft accidents is the air safety authority of the regulatory agency, as it is presently in Canada. In the United Kingdom, the Accident Investigation Board, although divorced from the regulatory authority, reports directly to the Under Secretary of State for Trade. In Germany, the Netherlands and Switzerland, accidents are investigated by a technical investigating body which reports to a Safety Board comprised of lawyers and officials of government.

However appropriate these other systems for accident investigation may be for other jurisdictions, my study has convinced me that there is an urgent need in Canada for an independent tribunal fashioned upon, but not identical with, that of the National Transportation Safety Board of the United States, which obtained its complete independence in 1975.

For many years in Canada consideration has been given to the establishment of an independent tribunal. Two separate studies, one by J. R. Boothe in 1966, and one by Brigadier General McLearn in 1972, were commissioned, both of which I have had the advantage of reading. Although they arrived at somewhat different conclusions, both studies were, in my respectful opinion, very carefully and ably prepared and were of great assistance to me.

Subsequently, by Bill C-40, which received its first reading on February 12, 1979, (but died on the order paper), the Government of Canada introduced a Bill entitled "An Act Respecting the Establishment of the Office of the Commissioner of Transportation Accident Investigation".

The tribunal contemplated by Bill C-40 was one of limited jurisdiction, composition, and objective.

The accidents and incidents to be investigated by the Commissioner relate to all means of transportation subject to federal regulations governing its safe operation. As it affects the air mode, if implemented in its present form, the Aviation Safety Bureau would remain in place within the Air Administration, with its present jurisdiction, save for the investigation and reporting of accidents that involve the operation of an aircraft operated by or on behalf of a department of the Government of Canada, or aircraft

accidents that result in the loss of life, or result in injury that, in the opinion of the Commissioner, involves a serious likelihood of the loss of life.

The investigation and reporting of such accidents is assigned to the Office of the Commissioner which is also authorized to investigate any accident or incident that, in his opinion, indicates a serious transportation deficiency, or requires independent investigation in order to avoid a possible conflict of interest, or any other accidents when requested to do so by the Minister of Transport, or the Provinces.

The Commissioner would be independent of any department of government and would report annually to Parliament through a Minister designated by the Governor in Council.

Many days of the Commission were devoted to an analysis of Bill C-40, and how in the view of many it could be improved upon to better achieve its very valid objective. To that end, written briefs, supplemented in most cases by oral comments, were received from the following:

(1) Transport Canada

(2) Canadian Bar Association

(3) The Advocates' Society

(4) Air Transport Association of Canada

(5) Aircraft Operations Group of the Canadian Union of Professional and Technical Employees

(6) L'Association des Gens de l'Air du Quebec

(7) Canadian Air Traffic Control Association Inc.

(8) Canadian Air Line Pilots Association

(9) Ministry of the Solicitor General for Ontario

(10) British Columbia Coroners Service

(11) Province of Alberta

(12) National Association of Chief Coroners and Chief Medical Examiners of Canada

(13) Canadian Society of Aviation Medicine

(14) Civil Aviation Medicine

(15) Aviation Safety Bureau

(16) Canadian Owners and Pilots Association

(17) Thomas E. Siddon, Member of Parliament for Richmond/South Delta, British Columbia

I also had the benefit of a very careful explanation of the Bill and of its rationale from Mrs. C. Sheila Nelles, of Transport Canada, to whom I am indebted.

I am also indebted to all those who submitted briefs to the Commission, and although I have carefully analyzed and considered them, time does not permit me to make reference to all of them in this report, nor to refer to every matter raised. I do propose to deal with those matters which I regard as fundamental if an independent tribunal is to be established.

MANDATE OF THE TRIBUNAL

Aircraft Accident Investigation

The thrust of Bill C-40 would have the Office of the Commissioner investigate only fatal accidents or those accidents that result in injury that, in the opinion of the Commissioner, involve a serious likelihood of the loss of life. Most of the non-fatal accidents would continue to be investigated within the Air Administration, save for departmental aircraft. Thus, with approximately 700 accidents per year, of which approximately 100 are fatal, the Office of the Commissioner would investigate approximately one-seventh of all aircraft accidents, and the Aviation Safety Bureau within the Air Administration would continue to investigate the rest.

Both the Office of the Commissioner and the Aviation Safety Bureau would require qualified and experienced accident investigators and support staff.

The rationale of the division of responsibility was set forth in the Minister of Transport's Discussion Paper dated August 4, 1977 which accompanied a then proposed draft Bill, as follows:

"OPTIONS

10. In order to solve the conflict of interest problem that currently exists at least in appearance, five options come to mind. There are two extremes which may be postulated: (1) a new, additional organization might be created, or (2) a new organization might be created to take over the role and staff of existing organizations.

11. Neither of these extreme solutions can be recommended. The first one would undoubtedly result in duplication and confusion of responsibility, thereby creating a danger that, in some cases, nobody would take effective action. The second extreme would destroy existing, integrated systems that are working well and would cause a major organizational upheaval. It would inevitably also lead to a diminution in the sense of personal responsibility for safety now felt by safety regulators. It is vital that visible independence should not be purchased at the expense of demonstrated professional competence.

12. Several possible solutions fall between these two extremes: (3) An independent Commission could be created that would not carry out investigation but would instead review all reports prepared by the regulatory agencies; but this would not really silence all criticism about potential conflicts of interest. Furthermore, it would operate post facto, and would be denied access to primary sources of information available to the original investigator.

13. (4) The Commission could be required to select the accidents that it will investigate on the basis of criteria established by the Governor-in-Council or on the basis of a statistical sample. Under this approach, however, it is difficult to see how confusion about who is to initiate action could be avoided, and delays in getting accident investigators to the scene would be a serious problem.

14. (5) A clear, simple rule could be established which delineates the boundary between the responsibilities of accident investigators in the Commission and in the regulatory agencies. A convenient criterion is loss of life, and fears of conflict of interest arise mainly in connection with fatal accidents. The law could stipulate that the Commission would investigate all accidents in which loss of life has occurred.

15. Owing to ignorance or error, first reports of an accident may, in practice, not refer to a fatality and injuries may subsequently lead to death but as pointed out below, this should not cause serious problems. The purpose of the rule is not to ensure that a certain number of accidents is investigated by an independent Commission, but to draw a

clear, simple boundary between two areas of responsibility. It may be argued that by the selection of death as the standard criterion for Commission involvement in an accident, the question of apparent conflict of interest in non-fatal accidents is bypassed. There is some merit to this argument, but in answer it may be maintained that (i) the temptation, if it exists, to collusion among investigators and regulators would be strongest in fatal accidents, and (ii) a reasonable balance must be struck between what is desirable in the absolute, and what is reasonably feasible, given scarcities of available skilled and dedicated people, funds and equipment.

16. The law should stipulate that each regulatory agency, as soon as it has knowledge of an accident falling within the Commission's purview in which there is reasonable apprehension of loss of life, must inform the Commission and turn over to it the federal responsibility for investigating that accident. In any cases where doubts arise, it would be the responsibility of the Commission to decide whether the regulatory agency concerned or the Commission should carry out the investigation.

17. It would also be advisable for the Commission to be responsible for accident investigations when

    (a) an accident involves aircraft and ships operated by or on behalf of government departments, other than the Department of National Defence (DND);

    (b) directed to do so by the Minister of Transport;

    (c) authorized to do so by the Governor-in-Council upon the request of a provincial government or another federal agency, subject to the proviso that the Commission may assess charges not to exceed its costs against the agency that requests the investigation."

(Emphasis added)

The initial concept, as discussed in the Discussion Paper, would have limited the Office of the Commissioner to an investigation of fatal accidents only. Bill C-40 expanded its mandate somewhat by extending its jurisdiction not merely to fatal accidents but to those accidents as well which, in the opinion of the Commissioner, involve a serious likelihood of the loss of life. Nevertheless, the significant line of demarcation of the two areas of responsibility remains for the most part that of a fatal accident as contrasted to a non-fatal accident.

The proposed division of responsibility for investigating aircraft accidents was the subject of considerable constructive criticism by almost all those who presented briefs to the Commission.

Typical of the submissions made in that respect was that of the Canadian Air Lines Pilots Association, which submitted as follows:

"1. The Office of the Commissioner and Existing Investigative Agencies:

a) Proposed Law (10(1)(a), 10(3))

Currently, accident investigations of the various modes of transportation within Federal jurisdiction are undertaken by administrative or regulatory agencies. These agencies are responsible for the development and implementation of safety standards in addition to the investigation of accidents. With the introduction of an independent investigatory Office, the role of the existing agencies in accident investigation comes into question. In an apparent attempt to accommodate both the existing investigating agencies and the proponents of an independent office the proposal divides the inquiry function.

Obviously, the creation of a new parallel organization would have caused duplication, waste and confusion of responsibility leading to ineffective action. Conversely, Department of Transport officials have expressed the opinion that to supplant the existing organization 'would destroy existing, integrated systems that are working well and would cause a major organizational upheaval. It would inevitably also lead to a diminution in the sense of personal responsibility for safety now felt by safety regulators. It is vital that visible independence should not be purchased at the expense of demonstrated professional competence'. (Minister of Transport, Discussion Paper, August 4, 1977, page 9)

The resulting 'simple rule' (ibid page 9) to establish a delineation of responsibility between the Office of the Commissioner and the existing agencies is based on loss of life. Thus in para. 10(1)(a) of Bill C-40, the Office of the Commissioner shall conduct an investigation into accidents resulting in loss of life or injury involving serious likelihood of loss of life. Subsection 10(3) provides for a discretionary jurisdiction in certain other circumstances.

b) U. S. Position

The National Transportation Safety Board (NTSB), previously established within the Department of Transport, became a fully independent agency on April 1, 1975. (Transportation Safety Act of 1974, Public Law 93-633, Subsection 303 (a)). The NTSB has the authority to investigate, inter alia, aircraft accidents pursuant to title VII of the Federal Aviation Act (Subsection 304(a)(1)(A) Transportation Safety Act), and this function, once undertaken, is to the exclusion of any other agency.

The NTSB's predecessor, the Air Safety Board, was set up in the Civil Aeronautics Act, 1938. The Board remained under the auspices of the

Civil Aeronautics Board until it was spun off to the Secretary of Transportation (Department of Transportation Act, Public Law 89-670, para. 6(d), 80 Stat. 938 (1966)).

Therefore, notwithstanding lessening degrees of subordination through its evolution to independence, the NTSB never 'shared' its investigatory jurisdiction with any other agency. It does, however, request that the technical aspects of investigation of little import to accident prevention be carried out by the FAA.

A further function of the NTSB that is worthy of note is mentioned in para. 304(a)(4) (Transportation Safety Act).: 'The Board shall initiate and conduct special studies and special investigations on matters pertaining to safety in transportation including human injury avoidance'.

c) Recommendation

It is submitted that the Office of the Commissioner of an independent investigation body should be given sole authority with respect to transportation inquiries. It should have the power to investigate all accidents or incidents without regard to a fatality requirement. Indeed, non-fatal incidents may often yield greater safety and accident prevention information than fatal accidents where all witnesses may have perished. The proposed sharing of investigatory power appears to have no reasonable foundation; the reasons posited in the August 4, 1977 Discussion Paper are tenuous at best. It is rather difficult to imagine how replacement of existing agencies by an independent authority would 'cause a major upheaval' or 'lead to a diminution in the sense of personal responsibility for safety now felt by safety regulators'. The investigators in an independent agency would be free of any real or imagined constraints which may arise when they investigate functions performed by other agencies of their own department, or by the fact that they are employees of a possible litigant.

Continuation of a parallel jursidiction would unnecessarily detract from the paramount notion of complete independence. The appearance of total absence of conflict of interest is essential, and this, it will be recalled, was one of the primary goals of the Bill.

Administrative and logistic difficulties are also inherent in a structure of parallel jurisdiction. The Canadian Bar Association is in agreement with this point, stating that '. . . the effect of creating a new board to investigate particular accidents is to create a parallel structure with considerable duplication in services and costs. The creation of one independent board to investigate all accident should reduce, not increase, the expense'. (C.B.A. Submission, Canadian Accident Investigation Commission, page 10).

In conclusion, the demarcation of investigation sharing at the fatality level appears fortuitous and unwarranted. This provision appears to have been in response to apprehensions, on the part of existing

agencies, of being supplanted. On the contrary, the competent accident investigation personnel of these agencies should look forward to continuing their work in the more favourable conditions of an independent Office."

In a similar vein, The Canadian Bar Association submitted as follows:

"2. Board must Investigate all Accidents

In paragraphs 14 and 15 the Paper contends loss of life should be a convenient jurisdictional criterion for the new body stating '. . . fears of conflict of interest arise mainly in connection with fatal accidents.' While the Paper may be correct in the sense that fatal accidents tend to involve larger damage awards the civil litigation conflict is but one of several, the rest of which exist in all accidents, as in fact does the civil litigation conflict in non-fatal cases. We therefore contend that to meet Cabinet's objectives, the problem requires a qualitative not a quantitative solution.

3. Board's Investigation Staff to be transferred from existing Transport Canada Safety Division

The Paper identifies three potential problems associated with the staffing of an independent Board:

i) Loss of contact between investigators and the balance of Transport Canada;

ii) Loss of morale of investigators; and

iii) Expense.

As to (i), the Paper rejects the 'extreme' option of an independent Board which would take over the existing investigative network as it '. . . would destroy existing integrated systems that are working well and would cause a major organizational upheaval.'

From outside Transport Canada it is difficult to comment on what is meant by the destruction of '. . . existing integrated systems . . .' that are working well.

We see no reason for there not continuing to be informal passage of information from regulators and suppliers of services within MOT to investigators and 'vice versa.' In fact, we foresee a relationship similar to that which, in most cases, investigators now experience with private industry whereby the latter freely give their time to assist investigators in the overall interest of safety. We expect Transport Canada will respond similarly and will interchange information with staff of the independent Board.

Considerable care must be taken by the Board to maintain its independence from Transport Canada and from industry when such outside assistance is provided.

Again, from the outside it is difficult to comment on the 'major organizational upheaval' point referred to in paragraph 11 of the Paper. As the safety personnel are already separate to some extent from the balance of the Department, we see no practical reason why staff working with investigative sections within Transport Canada could not be transferred to the Board. This would only cause a shift in job positions and classifications with budget reallocation or transfers. Any reorganization would have the same effect. Changes would not cause major organizational upheaval but only reallocation of job positions which are presently found in a directorate or branch within Transport.

As to (ii), the Paper contends the creation of an independent Board which would take over the existing investigative network would '. . . inevitably also lead to a diminution in the sense of personal responsibility for safety now felt by the safety regulators.' It also states 'It is vital that visible independence should not be purchased at the expense of demonstrated professional competence.'

We are surprised at these contentions.

The sense of personal responsibility of safety regulators should not be diminished as it exists independently of the investigative process. There would be continued liaison with the investigative body. The impact of recommendations and orders of the investigative body on such regulatory agencies, on the public and on parliament, would ensure that this sense of personal responsibility remain. It would provide much desired encouragement for regulators to maintain it. Further, in our submission it is much more probable that regulatory and service branches of Transport Canada will implement and initiate safety recommendations in the light of public and not internal pressure.

Professional competence would not be taxed by creating this new body; on the contrary, it will be stimulated by having all investigative personnel of marine, air, surface transportation grouped together and by the prevailing sense of public achievement which will be generated by the orientation given to the new body and to the effect of its recommendations.

Major complaints of investigators in past years have been that regulatory staff responsible for policy decisions have failed to act on their professional recommendations, and where such recommendations reflect on regulatory and service supply sections within the Department of Transport, they are completely ignored. The manner in which the investigative body will operate and make its recommendations as outlined hereinafter will prevent this from happening.

As to (iii), the issue of whether an independent organization would be more expensive than the existing system or to the proposed Commission is highly relevant to its creation and survival.

Again, from the outside it is difficult to see why a Board would be more expensive than the existing system. Administration expense should be common to new and old. Separate premises could be a greater expense but we see no reason why the Board could not operate well in premises more convenient to its functions at a lower per foot cost than is presently being paid in most Regions.

Paragraph 15 of the Paper contends that the Fatal Accidents Commission would be less expensive than an independent board which would investigate all accidents. We do not accept this contention. As we see it, assuming the balance of transportation accidents will continue to be investigated, the effect of creating a new board to investigate particular accidents is to create a parallel structure with considerable duplication in services and costs. The creation of one independent board to investigate all accidents should reduce, not increase, the expense."

The Air Transport Association of Canada expressed its objections in the following manner:

"2. <u>The Scope of the Commission Relating to Accident Investigation</u>

While the need for an independent accident investigation commission has been recognized for some time, the scope and powers of such a commission have been the subject of much discussion and disagreement.[2]

Bill C-40 introduced in the Fourth Session of the Thirtieth Parliament (Bill C-40) would have created an independent Office of a Commissioner of Transportation Accident Investigation had it been passed. However, the jurisdiction of the Office would have been limited. The Office of the Commissioner would have been required only to investigate accidents resulting in loss of life or a serious likelihood of loss of life and accidents that the Minister requested the Office of the Commissioner to investigate. The Office of the Commissioner would also have had a discretion to investigate an accident or incident where, in the opinion of the Commissioner, the accident or incident indicated a serious transportation system deficiency or required independent investigation in order to avoid a possible conflict of interest. ATAC does not consider that this provision goes far enough. While it is clearly a step in the right direction, it is desirable that all accidents be investigated by an independent Commission. A major concern in this respect appears to be expense and, clearly, an analysis is required to ensure cost effectiveness. An observation that can be

made, however, is that the system proposed in Bill C-40 would result in the maintenance of an accident investigation staff in the D.O.T., thus duplicating resources and, therefore, appearing to be more costly than a system which transferred the entire responsibility for accident investigation from the D.O.T. to the new Commission.

The problem of conflict of interest or the appearance of such conflict of interest is too important to be permitted to continue, either in whole or in part. The only way the problem will be solved is by assuring that the investigation of all aircraft accidents is solely within the jurisdiction of the Commission. No useful purpose would be served by dividing accident investigation between the Commission and the D.O.T.

2 Discussion paper -- A Canadian Transportation Accident Investigation Commission, August 4, 1977.

The Canadian Bar Association comments on the creation of a Canadian Transport Accident Investigation Commission, August 10, 1978.

Bill C-40 Fourth Session, Thirtieth Parliament."

Comment on Aircraft Accident Investigation

In my respectful opinion the jurisdiction to investigate all civil aircraft accidents should be assigned to a new independent tribunal.

I am further respectfully of the opinion that it would be a serious mistake to divide the jurisdiction to investigate aircraft accidents between the Air Administration and a new independent tribunal. I find the criticisms of such a division of authority far more persuasive than the arguments in favour of such a division.

The principal reason advanced in the Discussion Paper for the creation of an independent tribunal is to eliminate the appearance of a conflict of interest. The appearance of such a conflict of interest will be perpetuated if the mandate of the independent tribunal were limited, and the largest number of accidents were to be investigated by investigators within the Air Administration. I do not believe that the appearance of a conflict of interest should be of any less concern in the investigation of non-fatal accidents than in the investigation of fatal accidents.

On that issue the Accident Investigation Board of the United Kingdom made the following comment:

> "I suggest the decision to refer all fatal accidents to the Commission whilst leaving non-fatal accidents to the appropriate regulatory agency is unlikely to prove the most effective way of achieving the ultimate purpose which is presumably, the prevention of accidents in the future."

In any event, as I have already observed, the problem is far more deeply rooted than a mere potential for a conflict of interest, and the proposed division of authority would aggravate the current unrest and disagreements rather than resolving them.

It is of particular importance that philosophically all accident investigators are convinced that they cannot perform their functions effectively as long as they remain part of the regulatory authority. Many of them appeared before me and I was impressed with their ability and dedication. It is a sincere conviction held by them and one motivated solely by their desire to promote the cause of aviation safety, and is equally applicable to the investigation of all aircraft accidents.

The transfer of all the accident investigators to an independent tribunal would not cause a major organizational upheaval as is suggested by those who support the division of responsibility. To leave them where they are with limited jurisdiction would, in my opinion, create such an upheaval and I fear would destroy the opportunity of effective work on their part.

From the point of view of an accident prevention program, there can be no valid distinction between the investigation of a fatal accident and a non-fatal accident.

It is the accumulated knowledge and expertise obtained from the investigation of accidents which can best ensure an effective accident prevention program, and such knowledge and expertise should not be diluted. Towards that end, the recommendations of the accident investigators (about which I will have more to say later) consequent on what they have learned from their investigations are of particular importance.

In a study of the need for an independent transportation accident investigation body by Brigadier General McLearn, previously noted, he concluded in part as follows:

> "On the basis of the above analysis, it has been concluded that creation of an independent Transportation Accident Investigation and Safety Board would be the only effective means of eliminating, or substantially reducing, the existing risks of conflict of interest inherent in present arrangements.
>
> It is most desirable that all accidents be investigated by the Board's staff or, in minor cases, on behalf of the Board of employees of the Ministry of Transport made available for the purpose. (Such MOT employees should be drawn from localities at some distance from the scene of an accident and care should be taken to ensure that they have no direct association with other employees who may have caused or contributed to the accident.) The purpose of this proposal is to avoid the situation which has arisen in the United States where the investigation of the vast majority of air accidents is delegated to the F.A.A. thus clothing a regulatory agency with the unpleasant duty of criticizing itself and thereby creating a clear risk of conflict of interest. Moreover, such delegations would tend to foster bad relations between the Board and regulatory agencies. The most important reason for having all accidents investigated by or for the Board is that minor accidents, but for luck, might well have been serious. The lessons to be learned are equally important whether an accident is serious or not and the Board's role is recommending safety measures should not be fettered by lack of direct involvement in an investigation.
>
> As the safety division is part of the overall Administration, it could be inhibited by superiors from making certain worthwhile recommendations on grounds such as conflict with departmental policy. Certain recommendations that might be made could be rejected at higher levels because, if adopted, they would conflict with some other objective of the Administration. In other words, the Aviation Safety Division could be frustrated in putting forward, or having implemented, worthwhile proposals that might have merit outweighing other interests. There is no opportunity for outside parties to make their views known as they are not aware of recommendations that have been made within the Ministry."
> (Emphasis added)

As has been previously observed, recommended safety measures heretofore made by the Aviation Safety Bureau have often been given little attention by the regulatory authority. There may well be valid reasons for the rejection of such recommendations, and the ultimate determination whether effect should be given to the recommendations must rest with the Air Administration. However, recommended safety measures forwarded to the regulatory authority by an independent tribunal in a manner, which I

will subsequently propose, would perforce have to be given greater consideration and would be a matter of public record.

The option of a new additional organization was rejected in the Discussion Paper because it "would undoubtedly result in duplication and confusion of responsibility". Yet that is what I think would happen if the jurisdiction to investigate aircraft accidents is assigned to two separate agencies.

It is said that the transfer of all accident investigators from the Air Administration to an independent tribunal "would inevitably lead to a diminution in the sense of personal responsibility for safety now felt by safety regulators". I recognize that the ultimate responsibility for air safety must be that of the Minister with the advice and assistance of the Air Administration, but I am not satisfied that the transfer of the responsibility for the investigation of all aircraft accidents to an independent tribunal would result in any diminution of the safety consciousness of the regulator, nor is there any reason why it should. The experience in the United Kingdom is quite to the contrary. In this respect the Civil Aviation Authority of the U.K. commented as follows:

> "Experience of the U.K. is that having a separate accident investigation branch in no way diminishes the sense of personal responsibility within the regulatory body as the burden of aviation safety still rests with the CAA. There must be good communication between the regulatory body and the accident investigation body if the approach is to be successful."

With the evolution of the independence of the National Transportation Safety Board in the United States, although the Federal Aviation Administration carries out a factual study of many of the aircraft accidents, the analysis of the facts, the determination of probable causes, the publication of the report and the making of recommendations are reserved in those cases to the National Transportation Safety Board itself. The Commission was advised that such a minimal division of responsibility came about more by accident than by design by reason of the various stages of the evolution of the independence of the National Transportation Safety Board and also by reason of the workload imposed on a multi-modal tribunal. It was the opinion of Mr. Fritz L. Puls, for many years General Counsel of the National Transportation Safety Board, that if one were to start afresh, it would be preferable to have an independent tribunal conduct all

the investigations of all aircraft accidents. The proposed division of authority would create the very difficulties which gave Brigadier General McLearn so much concern in the passage of his study, which I have set forth above.

Further, a system of divided responsibility would require both investigative agencies to be manned with highly qualified investigators and support staff. Not only would it be less effective than a single agency, but I cannot help but feel more expensive as well.

Finally, from all that I have learned in this phase of the Inquiry, apart from all other considerations, I am convinced that such a divided system would not work.

A Tribunal for Aviation

The tribunal proposed by Bill C-40 related to the air, surface, rail and marine modes of transportation. The rationale for a multi-modal tribunal is that the same potential for a conflict of interest arises since all these modes are subject to regulation by agencies within Transport Canada.

In the Discussion Paper the following statistics were provided:

TABLE 1

	Marine		Air		Surface[1] (motor vehicles)		Rail	
	Accidents*		Accidents*		Accidents*		Accidents*	
Year	Reported	Invest.	Reported	Invest.	Reported	Invest.	Reported	Invest.
1970	451 (na)	53	565 (na)	565	498,839	17 (6)	4,622 (137)	541
1971	422 (11)	54	565 (78)	565	491,781	73 (15)	4,721 (145)	569
1972	463 (18)	86	652 (92)	652	527,911	106 (12)	4,818 (163)	1,190
1973	442 (22)	81	729 (86)	729	553,146	107 (26)	4,684 (140)	1,191
1974	471 (27)	98	710 (74)	710	623,765	118 (35)	5,254 (144)	1,358
1975	397 (51)	121	713 (92)	713	645,464	119 (47)	4,574 (133)	597

* The number of accidents involving loss of life is shown in brackets. In the air transport column, roughly half of the fatal accidents involved commercial aircraft.

No. of Full-time Accident Investigators				
H.Q.	6	15	4	5
Field	0	37	0	6

NOTE:

Marine: In view of the shortage of man-power, personnel other than Accident Investigators are frequently used in the field operations. It is expected that 5 Accident Investigators will be added soon to field operations.

Surface: There are 10 teams located at universities across Canada with a total of 18 accident investigators operating under contract and direction by Ottawa Headquarters.

Rail: Although there are only 11 persons formally designated as Accident Investigators, other employees of the RTC, from H.Q. as well as field operations, are deployed from time to time as Accident Investigators, depending on their experience in certain areas.

* * * * * * *

1 Highways being under the jurisdiction of the provinces, accidents are not formally reported to Ottawa. Certain accidents are selected to be investigated, on the basis of criteria established by the Canadian Surface Transportation Administration.

It has been noted that all air accidents are investigated although the extent of the investigation would depend on the nature of the accident. Only a small proportion of accidents in the surface, rail and marine modes are investigated, and the number of air accidents investigated is approximately equal to the total number of accidents investigated in the other three modes. The assignment to a new tribunal of the jurisdiction to investigate all accidents in all modes would be an extremely burdensome one. It was said that it would be desirable to limit the workload of the new tribunal, and that objective could be achieved by limiting its jurisdiction in the manner proposed by Bill C-40.

Comment On A Tribunal For Aviation

I have already stressed the dangers inherent in the division of responsibility in the investigation of aviation accidents. If the new tribunal were concerned with aviation accidents only, the workload of the investigators of the new tribunal would be the same as is current in the Aviation Safety Bureau. I am under the impression that those entrusted with aviation accident investigation have had the opportunity to acquire greater experience and expertise than those who investigate other modes. I would not want to see that experience and expertise diluted by the imposition of added responsibilities on them. There would be the added advantage of the tribunal being composed of members who would have, and develop, a special expertise in aviation matters.

I question the necessity of a multi-modal tribunal. Although the National Transportation Safety Board, headed by five board members, is a multi-modal tribunal, the Commission was advised that the investigation of accidents is left to specialists in each mode. Mr. Fritz Puls, former General Counsel to the National Transportation Safety Board, to whom reference has already been made, indicated a preference for a single modal tribunal.

It is also noteworthy that in his recent Report of the Mississauga Railway Accident Inquiry Mr. Justice Grange did not recommend that rail accident investigations be assigned to a new tribunal.

Rather than sacrificing an effective aviation accident prevention program, I will propose that the new tribunal be limited to one concerned solely with aviation, and that consideration of a multi-modal tribunal be delayed.

The Objective Of Accident And Incident Investigation

The ultimate objective of the investigation of aircraft accidents and incidents is to learn from such investigations how to prevent accidents in the future. It is analogous to preventive medicine. It is not the objective of a tribunal entrusted with this duty to decide the rights of any of those who may have a direct interest in the matter being inquired into. Therefore, an investigator should not confine the investigation to evidence that might be admissible in a court of law or before any other tribunal which determines rights. Hearsay evidence normally excluded from such proceedings may provide important assistance for the purpose of accident prevention.

I think it is a misunderstanding as to the objective of accident and incident investigation which has given rise to some of the conflicts that have been referred to earlier in this report.

ICAO Annex 13, to which reference has already been made, provides in part as follows:

> "3.1 The fundamental objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability."

In the Manual of Aircraft Accident Investigation under the signature of Mr. W.M. McLeish, when he was Director General, Civil Aeronautics, he set out the objectives of the Aircraft Accident Division of the Aviation Safety Bureau as follows:

> "Investigate and determine the cause of civil aircraft accidents which occur in Canada.
>
> Determine the cause of all accidents involving Canadian registered aircraft which occur outside of Canada.
>
> Make recommendations for action to prevent the recurrence of similar accidents and to disseminate information and data arising from accident investigations.
>
> . . .
>
> An accident investigator must fully appreciate that it is not his function to establish blame or assess liability. Above all, he must remain objective in order to determine what happened and why."

Pursuant to The Civil Aviation (Investigation of Accidents) Regulations 1969 U.K., the following appears:

> "4. The main purpose of investigating accidents under these Regulations shall be to determine the circumstances and causes of the accident with a view to avoiding accidents in the future, rather than to ascribe blame to any person."

In the enactment establishing the National Transportation Safety Board of the United States, the following appears:

> "Aircraft accident or incident investigations are conducted by the Board in order to determine the facts, conditions, and circumstances relating to each accident or incident and the probable cause thereof and to ascertain measures which will best tend to prevent similar accidents or incidents in the future. . . ."

Comment On Objective

I think it essential that a clear statement of the objective of aircraft accident and incident investigations be included in any enactment creating an independent tribunal. I favour a statement of objective in the following vein:

> Aircraft accident and incident investigations are conducted in order to determine the facts, conditions, and circumstances relating to each accident or incident and the probable cause thereof, with a view to ascertaining measures which will best tend to prevent similar accidents or incidents in the future, and not for the purpose of apportioning blame or liability.

Apart from the advantage of avoiding confusion in this respect by a clear statement of objective, the distinction is fundamental when one considers the practices and procedures which will govern the new tribunal in carrying out its duties.

Accident Investigation - Status

Bill C-40 provided as follows:

> "16. A person may attend as an observer at an investigation of an accident or incident conducted by the Office of the Commissioner if
>
> (a) that person represents a regulatory agency, an investigative agency or a remedial agency;
>
> (b) that person has observer status pursuant to an international agreement or convention to which Canada is a party; or
>
> (c) at the discretion of the Commissioner, that person is invited by the Commissioner to attend as an observer at the investigation."

Comment on Status

Although the proposed provision provided for an observer status, it does not allow anyone other than the accident investigator to actually participate as part of the team inquiring into the accident. It was strongly urged before the Commission that it would be appropriate in many accidents for the accident investigator to be assisted in the conduct of the investigation by those who may have a special expertise in the particular problem being inquired into. Most of the major associations in aviation have safety committees within which there is a wealth of valuable information which, if tapped, could be invaluable to the investigator. In addition to the Air Administration, which has in its service experts such as civil aviation inspectors, airworthiness inspectors, airways and flight training inspectors, flight service specialists and aircraft mechanical engineers and emergency service personnel, I have in mind the associations which represent pilots, air traffic controllers, flight attendants, flight dispatchers, electricians and aircraft technicians as well as the owners, operators, manufacturers and carriers.

In addition to observer status, the tribunal should have authority to assign to the accident investigation team experts from the various associations or other individuals who may have special knowledge of the problem being inquired into. It is essential that anyone from such a source added to the investigation team should demonstrate objectivity. Thus, automatic status should not be granted in the enabling statute, but the

designation of members of the investigating team, in addition to the accident investigators, should be at the discretion of the tribunal with the right of removal if objectivity is not maintained.

Observer status, as contemplated by the provisions of the Bill above cited, could still be granted to those who may have a direct interest in the subject matter of the investigation but who have not demonstrated the objectivity required for investigation status.

Accident and Incident Investigation Reports and Recommendations

Accident and Incident Investigation Reports

Bill C-40 included the following provisions:

> "18. (1) On completion of its investigation of an accident or incident, the Office of the Commissioner may, in order to prevent a similar accident or incident or to promote transportation safety, make general recommendations based on its findings on the contributing factors and causes of the accident or incident and the Office of the Commissioner shall make its findings and its recommendations, if any, available to the public.
>
> (2) The Office of the Commissioner shall,
> (a) on completion of its investigation of an accident or incident, notify, in writing, the appropriate department or, in the case of coordinated investigations under section 11, the Department of National Defence or the Canadian Forces of its findings on the contributing factors and causes of the accident or incident and its recommendations, if any, under subsection (1); and
> (b) during its investigation of an accident or incident, notify forthwith, in writing, the appropriate department or, in the case of coordinated investigations under section 11, the Department of National Defence or the Canadian Forces of any of its findings that are safety related.
>
> (3) The appropriate department shall, within a period of ninety days after it has been notified of the findings and recommendations of the Office of the Commissioner under paragraph (2)(a), advise, in writing, the Office of the Commissioner of the action, if any, it has taken or proposes to take in response to those findings or recommendations.
>
> (4) If the Commissioner is satisfied that the appropriate department is unable to advise the Office of the Commissioner within the period

referred to in subsection (3), the period may be extended as the Commissioner deems necessary."

Comment on Accident and Incident Investigation Reports

An accident or incident investigation report performs the following functions:

(1) It ensures the public that expert inquiry is made into the accident or incident with a view to seeking methods to prevent further accidents from arising from similar cause or causes or contributing factors.

(2) It is a source of education for all those who have an input into aviation safety.

(3) It provides information for a data bank from which analyses may be made, which analyses might disclose a trend of aviation safety deficiencies.

The accident investigation report should be that of the tribunal after review of the findings of the accident investigators. Before the issuance of the report, anyone who has a direct interest in the findings of the tribunal should be made aware of the draft report before it is finalized and have an opportunity to make submissions much in the manner in place now in the procedures adopted by the Aircraft Accident Review Board, which I have set forth above at page 106.

However, since the tribunal does not determine the rights of any of those who may have a direct interest in what is stated in the report, it is not a judicial or quasi-judicial body. In receiving submissions of interested parties, the tribunal should be free to receive them in a manner which it deems most helpful and in a non-adversarial atmosphere. It should not be bound by the rules which govern judicial or quasi-judicial bodies, or administrative tribunals which determine the rights of parties.

There would be no reason for providing an appeal from such a tribunal, as has been submitted by some, but the tribunal should have the right to reconsider its findings even after publication of its report.

Where an investigation has been undertaken by the tribunal, a report of the same should, in every case, be made public.

Comment on Accident and Incident Recommendations

I have stressed throughout the importance of recommendations to prevent future accidents or incidents and to promote aviation safety from what is learned from an investigation.

ICAO Annex 13 reads:

> "5.4 The investigation shall include the gathering, recording and analysis of all relevant information, if possible, the determination of the cause(s), and the completion of the Final Report followed, if appropriate, by Safety Recommendations. When possible the scene of the accident shall be visited, the wreckage examined and statements taken from witnesses."

The making of recommendations should be a matter of the highest priority for an independent tribunal. I agree that the recommendations should be general in nature. The rationale for this is stated in the Discussion Paper as follows:

> "The power was limited to general recommendations because the Commission would have sufficient expertise to make a general recommendation (such as 'all ships' officers must take training in the use and operation of modern electronic equipment') but would not in all likelihood have a detailed knowledge of the type of training desirable, the kind of equipment in general use, and a myriad of other details. It would not likely be inquiring as to whether the regulatory body or industry was already looking at the problem and in the process of devising a remedy or how this work-in-hand was linked to ongoing plans for safety standards."

Section 18 of Bill C-40 contemplates the making of recommendations only on the completion of an accident or incident investigation. In my opinion the tribunal should also have the authority to make recommendations at any time if it becomes aware of any aviation safety deficiency. Critical events do occur in "accident-free operations", and this data is often just as important to the development of accident prevention methods as that collected from the investigation of an accident. The recommendations should be

forwarded to the appropriate division of the Air Administration, and in matters of urgency the tribunal should be authorized to forward its findings and recommendations, even though tentative, before the completion of its report to such appropriate department. The Air Administration will determine what action is to be taken, but should advise the tribunal in the manner and time proposed in section 18 of Bill C-40 of the action, if any, it has taken or proposes to take in response to the recommendations, and if it determines that no action will be taken, its reasons for arriving at that conclusion, which response should also be a matter of public record. In this way, there can be assurance that the recommendations will be given serious and prompt consideration.

INCIDENT INVESTIGATION AND REPORTING

Pursuant to Bill C-40, as it relates to the air mode, the Office of the Commissioner would have jurisdiction to investigate those incidents where, in the opinion of the Commissioner, the nature or type of the incident indicates a serious transportation system deficiency or requires independent investigation in order to avoid a possible conflict of interest. All other incidents would be investigated by the Aviation Safety Bureau within the Air Administration. Bill C-40 did not establish a formalized incident investigation and reporting system.

The fundamental purpose of an aviation incident investigation and reporting system is to establish the circumstances, the sequence of events and the contributing factors leading to any occurrence prejudicial to air safety and to use that data as a basis for an effective accident prevention program. The objective includes the concept that any circumstances which come together to cause an aircraft accident will almost certainly have occurred previously and these circumstances are capable of being identified and remedied given a suitable method for doing so. The difficulty is that those who have knowledge of such an incident are hesitant to come forward for fear that the disclosure would prejudice them with their employer and the regulatory authority if they are involved in the incident being reported. There is also the natural reluctance of reporting on the conduct of fellow employees or friends. Thus valuable information is withheld. What is sought for is a system which would encourage such reporting in the interest of aviation safety, but which would not unduly prejudice the person who volunteers information for the purpose of promoting aviation safety.

Definitions

The Air Regulations, published in the Consolidated Regulations of Canada, 1978 C.P.C., chapter 2, define aircraft incident as "an incident involving an aircraft that, in the opinion of the Minister, endangered the safety of persons."

The Manual of Operations for Air Traffic Control published by Transport Canada, in a note to section 2241.1, defines incident as "any abnormal occurrence that is significant."

Annex 13 to the Convention on International Civil Aviation, entitled "Aircraft Accident Investigation", defines incident as "an occurrence, other than an accident, associated with the operation of an aircraft which effects or could effect the safety of operation."

Generally an incident is commonly meant to refer to a "near miss", that is an accident that almost happened. It is also used to refer to other occurrences such as engine malfunctions, in-flight fires, flight control system malfunction, and overdue aircraft. One of the most common incidents is that known as a "loss of separation", namely, an occurrence in which less than the authorized separation minimum between aircraft existed. Separation minimum is defined by the Air Traffic Control Manual of Operations as "a statement of the least allowable amount of lateral, longitudinal, or vertical separation to be applied." A technical loss of separation is defined by the MANOPS as "an occurrence in which less than the authorized separation minimum existed but no evasive action was considered necessary by the aircraft or controller".

I shall also be discussing one other concept that may in certain circumstances be worthy of investigation, namely, aviation situations, conditions or practices, short of an accident in which the associated activities could be dangerous to the flight of an aircraft.

Existing Legislation

The Aeronautics Act at section 8(1) states:

> "The Minister may establish a board of inquiry to investigate the circumstances of any accident involving an aircraft or of any alleged breach of any regulation made under Section 6 or of any incident involving an aircraft that,

in the opinion of the Minister, endangered the safety of persons, and may designate the persons that are to be members of that board."

The Air Regulations at section 835(3) states:

> "Where an aircraft incident occurs, an aviation safety investigator has the authority
>
> (a) To enter and examine the aircraft and its contents, examine any marks made by the aircraft and take possession of the flight data recordings and any other thing that might assist in determining the cause of the incident;
>
> (b) to enter at any reasonable time any premises of the owner, manufacturer, repairer, servicer or operator of any aircraft, aircraft engine or components of any aircraft or aircraft engine involved in the incident and inspect any such premises including any equipment, stock or record found therein; and
>
> (c) to take statements from any person having information concerning the aircraft incident."

The Air Traffic Control Manual of Operations states at section 2241.1, "Report to the unit chief, as soon as practicable, any incident that may require investigation." It is worth noting that in the Manual of Operations, the Department is issuing instructions as employer, and not as regulator, licencing authority or safety investigator.

Air Navigation Order Series VII No. 3, dealing with standards and procedures for air carriers using small aeroplanes in air transport operations, states at Article 16(1):

> "No flight shall commence following any accident or incident involving damage or suspected damage to the aeroplane unless the commencement of such flight has been approved in accordance with subsection 2, after consultation with the pilot-in-command, by the Director of Flight Operations or by another person designated in the air carrier's Operational Manual to act in his absence."

A similar provision exists in Air Navigation Order Series VII No. 2, dealing with air carriers using large aeroplanes.

In his testimony, the Administrator testified as follows:

> ". . . We were unable to adopt an incident investigation system that satisfied our desires but we did introduce for example two Air Navigation Orders, I think they are Nos. 13 and 14, dealing with the use of the flight data recorder and the cockpit voice recorder to investigate incidents and we put the onus on the aircraft operator to investigate any incidents and make use of those recorders where the operator had received the report from a pilot that an unusual circumstance had prevailed during the flight. . . ."

Referring to the ANOs cited by the Administrator, Section 5 of ANO Series II No. 13, namely, the Flight Data Recorder Order, the following appears:

> "If the operator of an aeroplane becomes aware of a hazard or potential hazard to flight safety resulting from improper operation or functioning of the aeroplane, near collision or abnormal meteorological conditions, the operator shall submit to the Director, Civil Aviation such information as has been recorded by the flight data recorder relating to the hazard or potential hazard and a report from the pilot-in-command relating to the circumstances of the hazard or potential hazard."

A similar provision relating to the cockpit voice recorder exists at ANO Series II No. 14 entitled "Cockpit Voice Recorder Order".

Although the administrator stated that the result of these ANOs was to put the onus on the aircraft operator to investigate any incidents, the operator's onus seems to be discharged once the operator forwards to the Director of Civil Aviation the flight data recorder or cockpit voice recorder information accompanied with a report from the pilot in command relating to the circumstances of the hazard or potential hazard.

Other than the above mentioned provisions and the fact finding board process subsequently referred to, Canada does not have a formalized incident reporting system or incident investigation procedure.

Comparative Legislation

Australia

In Australia, section 278 of their Air Navigation Regulations, states:

> "The Director-General may authorize either generally or specially, one or more investigators to conduct an investigation into any matter connected with any accident or incident occurring in Australian territory."

As well, Australia has an air safety incident reporting system which is basically mandatory, administered by the Air Safety Investigation Branch of the Department of Transport, which processes some 6,000 reports annually. As to what is to be reported, the Australian system advocates and accepts any occurrence or circumstance which anyone in the industry believes to be undesirable or hazardous, and the obligation to report incidents rests not only with pilots but also with aircraft owners, operators and air traffic control personnel. The reports are sent directly to the Department of Transport, which is the Australian regulatory authority, although the report is processed by air safety investigators employed solely on air safety investigation work. Follow-up action to obtain elaboration of the report presents no difficulty because the notification procedures call for the originator to be identified.

Once the facts are obtained, the investigator assesses the occurrence for its safety hazard potential, and if remedial action is required, the matter is immediately referred to the appropriate regulatory area.

Although there are no statutory provisions for reporting immunity in the Australian system, a practical policy of immunity was set forth by the publication in the 1968 Aviation Safety Digest of a pledge from the Director-General:

> "I am therefore taking this opportunity to re-affirm that the primary objective of air safety investigation in my Department is still the promotion of safety - not the establishment of blame and that I will not impose any disciplinary or punitive measure on the originator of an incident report for any of his actions in an incident which are brought to notice by his submission of such a report. I make only one exception to this policy. If the investigation of an incident shows beyond doubt that persons or property have been exposed to danger because of a deliberate and contemptuous disregard of the law or published instructions, or because of a dereliction of duty which amounts to gross negligence, then and only then, will my Department deal with the offender by whatever means are appropriate."

These provisions were extended in 1972 to cover pilots calling for assistance from the ground organization when encountering navigational or other difficulties.

United States

In the United States, Section 830.5 of the National Transportation Safety Board Regulations states:

> "The operator of an aircraft shall immediately, and by the most expeditious means available notify the nearest National Transportation Safety Board (Board), field office when:
>
> (a) An aircraft accident or any of the following listed incidents occur:
>
> (1) Flight control system malfunction or failure;
>
> (2) Inability of any required flight crewmember to perform his normal flight duties as a result of injury or illness;
>
> (3) Turbine engine rotor failures excluding compressor blades and turbine buckets;
>
> (4) In-flight fire; or
>
> (5) Aircraft collide in flight.
>
> (b) An aircraft is overdue and is believed to have been involved in an accident."

Part 831 of the NTSB Regulations concerns aircraft accident/incident investigation procedures and section 831.1 states:

> "Unless otherwise specifically ordered by the National Transportation Safety Board (Board), the provisions of this part shall govern all aircraft accident or incident investigations, conducted under the authority of Title VII of the Federal Aviation Act of 1958, as amended, and the Independent Safety Board Act of 1974. . . ."

It thus appears that in the United States the National Transportation Safety Board has the authority to investigate incidents, and furthermore the operator of an aircraft has a legal obligation to notify the NTSB of certain specified incidents.

In 1976 the Federal Aviation Administration (FAA), namely, the United States agency charged with policing the national aviation system, entered into a Memorandum of Agreement with the National Aeronautics & Space Administration (NASA), which

established the Aviation Safety Reporting System (ASRS). Reporters to ASRS were given a promise of immunity from disciplinary action for violations of Federal Aviation Regulations and a promise of complete anonymity. The role played by NASA was that of a third party intermediary, to act as an "honest broker" for report processing and analysis of the safety data to be derived from the voluntarily submitted reports. The system resulted from earlier studies which indicated that the willingness of persons to submit a report depended significantly on the FAA's ability to preserve the anonymity of those filing the report. Furthermore, the memorandum provided for transactional immunity with regard to information contained in ASRS reports and transactional immunity was defined as a system by which if any report was submitted by anyone involved in a safety incident or federal aviation regulation violation, all persons involved in that incident would be immune from Federal Aviation Administration disciplinary action. In other words, not only the reporter received immunity, but each and every person involved in the incident.

In 1979 Mr. Langhorne Bond, Administrator of the FAA, made a proposal to drop unilaterally the blanket immunity provision from the Memorandum with NASA. The proposed modification was intended to eliminate the waiver of disciplinary action completely while preserving the anonymity provision and would have allowed disciplinary action to be taken when a violation was reported by a source other than ASRS. In support of this modification, Mr. Bond stated the following:

> "It is an inescapable fact that our enforcement abilities have been seriously compromised by the Program's blanket immunity. . . . If we do not retain for ourselves the flexibility to take enforcement action against any and all who violate the regulations upon which air safety is founded, we have lost the deterrent effect that any enforcement program must have to be effective."

In a speech delivered March 16, 1979, Mr. Bond went on to add:

> "Freedom from self incrimination is one thing and freedom from accountability is quite another . . . We are only closing the loophole that makes it possible for a violator to escape punishment even if the offence is committed in full public view."

On the other hand a 1978 ASRS Management Study revealed that of the 5,500 reports sent in per year, only approximately 3% dealt with FAA enforcement matters or, in other words, 97% of the reports dealt with matters other than FAA violations.

In 1979 a compromise was arrived at between the ASRS Advisory Sub-committee and the FAA which limited immunity somewhat but did not eliminate it entirely, and the mainstay of the program, namely, the anonymity offered to the reporter, was not changed. Indeed the anonymity provision appears to have been strengthened by being made a part of the Federal Aviation Regulations. Section 91.57 of the Federal Aviation Regulations prohibits the use of any report submitted to NASA under ASRS in any disciplinary action by the FAA, except information regarding criminal offences or accidents. Under the new compromise, only the reporter is immune as opposed to anyone involved in a reported incident as was the case in the former system. Under the compromise, even if immunity is granted to the reporter, the Federal Aviation Administration will continue its investigation and may make an official finding that a violation has been committed.

Transport Canada's Proposal For An Aircraft Incident Reporting System

In 1979 the Director of the Aviation Safety Bureau prepared a discussion paper entitled "Proposal for an Aircraft Incident Reporting System". The stated objective was the following:

> "The objective is to establish a national aircraft incident reporting and investigation system which will act as an early warning system alerting Transport Canada to the safety problems that may exist in the national aviation system and to the need for change before accidents occur. It should also support Transport Canada's ongoing function of monitoring safety in aircraft operations. The need for such a system is based on the experience that incidents and accidents are identical in many respects and have greater value when used as a means of seeking ways to prevent accidents.
>
> To become successful and useful such a system must be accepted by the aviation community and this can only be accomplished if:
>
> a) the reporter of incidents is protected from disciplinary action by regulatory agencies and/or employers.
>
> b) Transport Canada does not seem to be in a conflict of interest situation by investigating itself.

c) there is feedback of useful results to the aviation community."

This discussion paper proposed a dual system: the first, a voluntary system based on the NASA system of reporting as used in the United States incorporating anonymity and immunity provisions as regards the reporter of the incident, and the second, a mandatory system whereby operators of large aircraft would have a legal obligation to report certain incidents regarding the operation of aircraft. The discussion paper included a sample list of the types of occurrences that would have had to have been reported by the operator, and I believe it useful to refer to that list:

"1) Flight control system malfunction or failure.

2) Inability of any required flight crew member to perform his normal flight duties as a result of injury or illness.

3) Turbine engine rotor failures excluding compressor blades and turbine buckets.

4) In-flight fire.

5) Aircraft collide in flight.

6) Losses of separation.

7) Aircraft declares an emergency or indicates any degree of emergency condition.

8) An aircraft touching down short, overrunning, or veering-off of the runway surface.

9) ATC irregularities.

10) Loss of pressurization.

11) Tire damage on take-off or landing.

12) Engine shutdown in flight.

13) Aborted take-off or landing.

14) Lightning strikes.

15) Undercarriage retraction or extension problems.

16) Unusual meteorological conditions.

17) On-board deaths, illnesses, injuries.

18) Run-a-way propeller.

19) Any occurrence resulting in damages to aircraft or injuries to persons which resulted from movements of the aircraft or operation of the engines.

20) Aircraft landing at other than destination aerodromes or designated alternate.

21) Emergency evacuation: report use or operation of any emergency equipment on the aircraft, including an assessment of the performance of such equipment.

22) Aircraft reports running low on fuel or is lost.

23) Aircraft damage due to turbulence or severe weather.

24) Severe vibration.

25) Aircraft loading irregularities.

26) Any incident not covered above which threatened damage to any property, or aircraft or injury to persons."

The proposal suggested that the management of the mandatory reporting system would be Transport Canada's responsibility and administered by the Regional Controllers of Civil Aviation in conjunction with the Safety Aviation Bureau.

The voluntary system would have been operated by the National Aeronautical Establishment, under a Memorandum of Understanding with Transport Canada, whereby the Minister's authority regarding safety monitoring would have been delegated in part to the National Aeronautical Establishment with a corresponding transfer of funds to cover operating costs.

The system was not implemented as proposed. Among other reasons the proposed system raised some serious legal problems. A legal opinion from the Department of Justice on the proposed aircraft incident reporting system stated in part:

> "To the extent that your incident reporting program would involve granting immunity from criminal prosecution, as distinguished from prosecution under the Air Regulations, you would still have to enter into some arrangement

with the provinces since the administration of criminal justice is clearly a provincial responsibility.

. . . There is judicial authority, both in England and in Canada, to support the proposition that, although the Crown has a discretion in the prosecution of violations of criminal or quasi-criminal law, this discretion must not be exercised in such a way that it amounts to a policy of general non-enforcement. That is, while the Attorney General may choose not to pursue an individual, he cannot decide that he will exempt an entire class of offenders or one type of offence from prosecution. Since your proposal would have the effect of granting a general immunity, in advance and without regard to the specific circumstance of each case, this would fall squarely within the scope of these decisions and would therefore require express legislative authority to implement."

The reason for the Memorandum of Agreement with the National Aeronautical Establishment was simple: it was felt that persons would hesitate to report directly to Transport Canada, the regulatory authority, despite any promises of anonymity, and would feel more secure dealing with an "honest broker". In his testimony, however, when asked if it would not be sufficient to simply report directly to an independent tribunal if such a tribunal were created, the Director of the Aviation Safety Bureau replied as follows:

"I don't see any problem with that and I don't think people would be reluctant to do that, but as long as we are in Transport I can see a great deal of reluctance on the part of the people."

COMMENT ON INCIDENT INVESTIGATION AND REPORTING

Section 3.1 of Annex 13 to the Convention on International Civil Aviation, entitled "Aircraft Accident Investigation", states in part:

"The fundamental objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. . . ."

It seems self-evident that in many cases the investigation of an incident can result in more pertinent safety recommendations than the investigation of an accident. The fact that there was no accident, and thus no loss of life, ensures the availability of all witnesses. Furthermore, in an aircraft accident, the aircraft is often destroyed or

seriously damaged, making investigation difficult. This is not the case in incident investigation.

Investigation of an incident could prevent a future accident and, indeed, preventative safety management dictates the investigation not only of near misses, but of potentially dangerous situations and unsafe practices.

I was impressed by the testimony of many accident investigators, and in particular, Mr. Harold Fawcett, who explained that an aircraft accident is almost always the final event in a chain of unfavourable events each of which alone could be termed an incident. Often one small incident can precipitate a series of more serious incidents resulting in a tragedy, and in most cases, had one of the incidents not occurred, the chain would have been broken and the disaster averted.

An incident investigation and reporting system thus appears essential in identifying system and operational deficiencies through the study of a large number of safety incident reports. Individually, reported experiences could pinpoint a particular safety deficiency. Taken as a whole, a series of incidents could highlight a problem safety area, identify trends and alert those persons responsible for aviation safety to a developing hazard before the accident occurs.

Virtually all the same arguments in favour of an independent tribunal for accident investigation apply with equal force to incident investigation. For those reasons I am of the opinion that the jurisdiction to investigate all incidents relating to civil aircraft should be assigned to an independent tribunal.

I am also of the opinion that all incidents should be reported to an independent tribunal. That would include incidents which may relate to air traffic controllers. There is in place an incident reporting system with respect to air traffic controllers, and a procedure for dealing with them through a fact-finding board and administrative review. I will be discussing this procedure in that portion of my report which relates to Enforcement. However, the purpose of the investigation of incidents by the independent tribunal is for the sole purpose of the promotion of aviation safety and the prevention of future accidents. The independent tribunal is not a regulatory or disciplinary body and

will preserve the anonymity of the reporter even from the regulatory authority. The reporting of incidents by the air traffic controllers to the independent tribunal would not replace the present procedures with respect to the reporting of such incidents by the air traffic controllers to the regulatory authority, although at a later date I will have some comments about that procedure.

I have been advised that the Australian system for the reporting of incidents has worked very satisfactorily in that country. It is mandatory in nature, but accompanied by an informal grant of partial immunity in civil or disciplinary proceedings. However, I find the concept of a mandatory reporting system with penal sanctions for its breach to be somewhat elusive.

The objective is to obtain information which would not be forthcoming otherwise. In other words, something has occurred which, but for the mandatory system, would not have come to light. If the person fails to comply with the mandatory duty, the breach of the mandatory duty could only be enforced if the same information comes to the attention of the authority from some other source. Thus, the incident would come to light and the information available. If no one reports it, the breach of the mandatory duty would never be disclosed and enforcement negated.

I do not favour the creation of an offence which is not readily enforceable. Such measures, I think, are counter-productive. I favour the introduction of a voluntary incident reporting system on an experimental basis for a period of years, following which further consideration can be given to the necessity of a mandatory incident reporting system.

I have been impressed with the keen desire of all those who appeared before me to promote aviation safety. If reasonable protection can be given to those who report, I am hopeful that a voluntary system will prove effective. The hesitancy of filing an incident report with a regulatory authority would be removed if the report were made to an independent tribunal. To assure anonymity of the person making the report from the investigator would deny the opportunity to obtain elaboration of the incident and, in many cases, would inhibit the incident investigators from the opportunity of making a full inquiry, and thus prove ineffective.

The granting of transactional immunity is foreign to the Canadian legal system and also raises serious constitutional problems. There is no reason to grant immunity to anyone because of an incident report having been made. However, the enabling statute should provide that the report could not be used against the reporter in any criminal or disciplinary proceedings. If the information is provided by anyone other than the reporter, proceedings could be taken on the basis of that information. Thus, no one would be granted immunity for that which was done, but those seeking to take action would have to resort to information other than the report itself.

The investigator must be free to make such use of the report as is necessary in the promotion of aviation safety, but the anonymity of the person making the report should be protected from others. There would be no need to identify the reporter in the public report which may follow the investigation. The enabling statute should provide that there should be no production of the report to those outside the tribunal. Public access to the report would be destructive of the voluntary system designed to encourage the reporting of incidents, and thus the report should not be subject to production pursuant to the Access to Information Act. In this way, reasonable protection would be given to the person making the report, and the flow of vital information to safety investigators should be stimulated.

The tribunal should also have the jurisdiction to investigate any other matter which may not fall within the definition of an accident or incident, but might disclose a deficiency in the aviation safety system.

Public Inquiries

Section 12(1) of Bill C-40 provided as follows:

> "If the Commissioner deems it necessary that an inquiry be made into an accident and the Governor in Council has not caused an inquiry to be made into the accident under Part I of the Inquiries Act, the Commissioner may
>
> (a) request the Governor in Council to cause an inquiry to be made into the accident under Part I of the Inquiries Act; or
>
> (b) by order, establish a public inquiry and, subject to subsection (3), designate the person or persons to preside over the public inquiry."

If those provisions were implemented, public inquiries would be dealt with on an ad hoc basis.

Representations were made before the Commission that there should not be a public inquiry into an accident on the ground that such inquiries do not advance the cause of aviation safety. In that respect, the Canadian Air Traffic Control Association, Inc. made the following submissions:

> "Public Hearings
>
> There are four points we would like to address with regard to public hearings. Although some of our comments will overlap into our discussion of privilege, we feel that our concerns are best addressed in this manner. The questions that we propose to answer are as follows:
>
> 1. Are public hearings beneficial from an investigative point of view?
>
> In our opinion they are not. First, logistically speaking, it is unlikely that a public hearing could be organized after any accident on sufficiently short notice to actually take place at the same time as the investigative process. That in itself, however, could in some circumstances be inaccurate since the investigative process may take months to complete in a difficult investigation.
>
> Secondly, we do not believe that an accident investigator would learn as much from witnesses at a public hearing as they would be prepared to tell him 'off the record'.
>
> 2. What purpose do they serve?
>
> We believe that if public hearings serve any purpose it is to demonstrate to the public that the investigative process has been exhaustive and the conclusions reached are supportable. Justice, in the sense of assigning blame, is not in our view an appropriate objective of accident investigation or public hearings adjunct to it. That is a matter for the courts. The atmosphere of a public hearing only serves to intimidate witnesses and the best evidence, from an accident investigation point of view, is not available.
>
> Aside from being a public spectacle, we perceive no useful purpose to be served by public hearings. Although our experience is limited to Coroners' Inquests, we foresee a parallel situation as to that which exists in the United States under the National Transportation Safety Board (NTSB). According to our information, many NTSB hearings degenerate into 'examinations for discovery' where prospective litigants are attempting to prepare their case for subsequent civil suits.

3. If we assume that the purpose of public hearings are to ensure and reassure the public that an exhaustive and complete investigation has been conducted, is there another way to satisfy these requirements?

   Yes, set up an Accident Investigation Commission, independent of the DOT, to investigate all accidents. We have seen from Inquiry Exhibit II-5 that Mr. McLeish's overriding concern in recommending a Public Inquiry regarding the Cranbrook accident was to disassociate the Inquiry from the DOT.

4. Will witnesses be uninhibited in their testimony at a public hearing?

   In our opinion, and particularly if they are a potential future litigant, they will be very guarded in their replies and co-operation. The objectives of accident investigation will certainly not be served in any case."

Comment On Public Inquiries

The right of the Governor in Council to cause an inquiry to be made under the Inquiries Act should be preserved, but, in my opinion, it would be preferable in those cases where the tribunal thought a public inquiry appropriate that it be conducted by the tribunal itself rather than on an ad hoc basis. Such inquiries would thereby be conducted on a consistent basis by those who have had experience and accepted expertise, and who also would be able to benefit directly from that which could be learned during the conduct of the inquiry itself.

With the establishment of an independent tribunal charged with the responsibility of investigating and reporting on accidents and incidents, it is anticipated that there will be few occasions when the tribunal would conclude that a public inquiry was necessary. However, such occasions may well occur in the future, particularly in the case of accidents which have achieved a high profile. I do not agree that the tribunal should be prevented, when the occasion arises, from conducting a public inquiry. Such inquiries could serve the public interest.

Although, as is the case of an accident or incident investigation report, such an inquiry would not determine the rights of any persons, anyone whose good name and reputation may be affected by such an inquiry should be afforded status before it. By the adoption of the Inquiries Act as the procedure to be followed for such an inquiry, such standing

to persons who have an interest in the inquiry can be readily afforded, and no allegation of misconduct could be made without giving an opportunity to the person or persons affected to be heard.

The concern expressed by CATCA that litigants may try to use the inquiry as a forum for discovery is a realistic one. However, the tribunal in conducting the inquiry will be the master of its own procedure, subject to the obligation of fairness, and would be in a position to see that the inquiry is conducted in a manner to achieve its objective.

It was said that the tribunal should not have the power to preside over an inquiry itself because of the possibility of a conflict of interest if the accident has been investigated by the tribunal and its activities and findings are questioned. Under such circumstances, if they do arise, an inquiry would more appropriately be established by the Governor in Council. But save under such circumstances, where the tribunal regards it as appropriate to conduct a public inquiry, in my opinion, it should conduct it itself.

COMPOSITION OF AN INDEPENDENT TRIBUNAL

At page 104 of this report I have set out the present structure of the Aviation Safety Bureau within the Air Administration. It is composed of four divisions: Aviation Safety Investigation (ASI); Aviation Safety Analysis (ASA); Aviation Safety Promotion (ASP), and Aviation Safety Engineering (ASE).

If Bill C-40 were to be implemented, the Aviation Safety Bureau, as I have already observed, would remain intact within the Air Administration, but with limited jurisdiction in the investigation of accidents and incidents.

Aviation Safety Investigation (ASI)

At page 104 I have set forth the functions of the Aviation Safety Investigation Division. The objective is to detect aviation system deficiencies and provide data. In meeting this objective ASI provides direction in four areas:

(a) developing and maintaining a national system for the investigation of aircraft accidents and incidents;

(b) investigating selected aircraft accidents and incidents;

(c) preparing aircraft accident and incident reports;

(d) developing new investigation and investigator training techniques.

Comment

I have already dealt with the issues raised by the divided jurisdiction proposed in Bill C-40 for accident and incident investigation. For the reasons stated at page 187 and following of this report, I have expressed the opinion that the jurisdiction to investigate all civil aircraft accidents and incidents should be assigned to the new independent tribunal, and it follows that the Aviation Safety Investigation Division of the Aviation Safety Bureau should be assigned to an independent tribunal and be responsible to it.

Aviation Safety Engineering (ASE)

As is noted at page 105 of this report, Aviation Safety Engineering provides the material failure analysis service to the Accident Safety Investigation Division as well as to other divisions of the Air Administration, such as the Airworthiness Division. It provides a scientific aid to accident investigation.

The evidence disclosed that approximately ninety per cent of the work of the engineers in ASE is devoted to the assistance of ASI in their investigations, and the rest of their work is principally in aid of the Airworthiness Division. In many accident investigations the principal study is made by Aviation Safety Engineering which plays a significant role in the preparation of the accident investigation report.

The case studies have disclosed the appearance of a conflict of interest which may arise by reason of ASE being a part of the regulatory authority which often has a direct interest in the results of the analysis made by the engineers. Case Study No. 2

demonstrated the lack of credibility given to the findings of the ASE where its study related to a fatal accident with respect to a departmental aircraft. Case Study No. 4 demonstrated the conflicts which arise between Aviation Safety Engineers, the Air Administration and the manufacturers.

Such conflicts will continue if ASE remains part of the Air Administration. This not only inhibits the engineers in their work, but also results in lack of credibility being given to their findings.

All senior officials of the Aviation Safety Bureau who testified were of the view that the Aviation Safety Engineering Division should join Aviation Safety Investigation in a new tribunal and be removed from the Air Administration. I know this to be the view of the engineers as well.

Mr. Heaslip, Chief of Aviation Safety Engineering, testified before the Commission. He expressed his dissatisfaction with the lack of independence of the Aviation Safety Bureau. In Mr. Heaslip's opinion, as unsatisfactory as the present relationship is, it would be better to leave the entire Bureau in the Air Administration rather than to sever the Bureau by assigning the accident investigators to a new tribunal and leaving the engineers within the Air Administration.

Comment

Apart from the appearance of a conflict of interest which would continue if Aviation Safety Engineering were left within the Air Administration, the preferences of those members should not be ignored. They are very capable professionals, and, in the laboratory operated by them, perform excellent work and provide a most valuable service to the cause of aviation safety. They should work in an environment best suited to permit them to pursue that objective. Being part of an independent tribunal would provide such an environment, and I think that they also should become part of such a new tribunal. Their credibility should be enhanced, and there would be a greater public acceptance of their findings. There is no reason why they could not also be available to assist the Airworthiness Division when called upon to do so.

Aviation Safety Analysis (ASA)

At page 104 of this report I have set forth the functions of this division of the Aviation Safety Bureau. The functions are as follows:

(a) directs the development and establishment of a program to define aviation system deficiencies by analysing aircraft accident, aircraft incident and aviation hazard data from all sources;

(b) directs the development and establishment of an aviation safety deficiency notification program;

(c) directs the preparation of aviation safety analysis project reports;

(d) directs the development of new analytical techniques.

The functions of the Aviation Safety Analysis Division of the Aviation Safety Bureau are of particular significance in an accident prevention program, but its work is inhibited by being part of the Air Administration.

In April, 1979 the Aviation Safety Analysis Division initiated a system of forwarding notices of aviation safety deficiencies to the heads of the departments with respect to which the matter seemed to pertain. The deficiencies were discovered as a result of analyses made of the accident investigation reports. It provided for a period within which the head of the department was to respond to the notices. The idea was an excellent one, and considerable effort was put into it by Aviation Safety Analysis and, in particular, by Mr. Pierre de Niverville who, in my opinion, gave able leadership to the project. Unfortunately, little, if any, action was taken as a result of the aviation safety deficiency notices forwarded and in some cases there was no response at all. Most of the notices related to airworthiness, and I will discuss the most significant ones in that portion of the report in which I deal with Airworthiness. For my present purposes I need only note that the Chief of Airworthiness did not appear to regard aviation safety deficiencies as matters of high priority. For reasons which will become apparent in the portion of my report devoted to Airworthiness, I do not agree.

Comment

If the Aviation Safety Analysis Division is left within the Air Administration, there is no reason to believe that greater priority will be given to it than now presently prevails. In addition, the effectiveness of Aviation Safety Analysis is dependent upon a constant monitoring of that which is discovered by the Aviation Safety Investigation Division. It must have immediate and direct access to all their findings. To obtain the greatest advantage of Aviation Safety Analysis it should, in my opinion, become an important division of the independent tribunal.

Aviation Safety Promotion (ASP)

As is noted at page 105 of the report, the functions of the Aviation Safety Promotion Division are as follows:

(a) develops and maintains national aviation safety information and motivation programs;

(b) develops and maintains a national system for the functional control and support of Regional Aviation Safety Officers;

(c) develops new media and training techniques.

Comment

I think it essential that the independent tribunal has its own Aviation Safety Promotion Division. Included in this division are regional aviation safety officers. They are made available particularly to the small carriers and consult with them on the best methods of improving their aviation safety record. Their function is not to enforce regulations, but to consult and advise with a view to improving the operation of the carrier and deliver the safety message of the Aviation Safety Bureau.

In the course of such consultation and in order to be most effective, there must be free and frank discussions between the carrier and the regional aviation safety officer, and he

must be afforded the opportunity of a complete analysis of the carrier's operation. In such a study previous violations of the regulations may be disclosed, but in order for him to achieve his objective, such information is given to him on a confidential basis. If he is part of the regulatory authority which has the responsibility of enforcing regulations, it would be natural for the carrier to hesitate to disclose information which may show a breach of the regulations in the past. If the regional aviation safety officer were part of an independent tribunal, the carrier would have greater confidence in making full disclosure, and the regional aviation safety officer would be in a better position to assist it so that in future the operation would be carried out within the regulations, and steps could be taken to improve the safety record of the carrier.

The Aviation Safety Promotion Division would also assist the new tribunal in getting its safety prevention program to the attention of those who could benefit by it. However, in this respect, the Air Administration should also have its own Aviation Safety Promotion Division. There are many matters which are dealt with by the Air Administration in the field of safety promotion which are not identical with those of an Aviation Safety Promotion Division of an independent tribunal. In this area there may be duplication and, perhaps, some additional expense, but the importance of aviation safety promotion cannot be overemphasized, and if duplication results in some added expense, it would be money well spent.

A Three-Member Board

Bill C-40 provided for a Commission with one Commissioner and a staff of investigators. Experts could be seconded from federal agencies or non-governmental experts could be employed. The Commissioner would be appointed by the Governor in Council and report annually to Parliament through a Minister designated by the Governor in Council.

Comment

The Commission contemplated by Bill C-40 was one of limited jurisdiction, composition and objective. The tribunal, which I will propose, is a tribunal of broader jurisdiction and objectives. It would have the jurisdiction to investigate and report on all civil aircraft accidents and incidents as well as any other matter which could affect aviation safety.

It would determine the members of the investigating team as well as determining those who may be given observer status. It would review and pass upon all the accident and incident investigation reports, and afford to those who have a direct interest in the reports an opportunity to make representations before they are finalized. It would review the recommendations in the reports and be responsible for the follow-up of such recommendations. Where a public inquiry is necessary, it would conduct such an inquiry. It would review the work of the Aviation Safety Analysis Division, the Aviation Safety Engineering Division and the Aviation Safety Promotion Division.

Having regard to the broad duties imposed upon such a tribunal, the tribunal should be headed by not less than three members. Apart from the fact that I think the workload would be too great for any one person, a three-member board would afford the opportunity of the appointment of members who would come to the tribunal with varied experience and expertise, and would thus command greater public confidence. It is noteworthy that in his study Brigadier General McLearn also recommended that an independent board should consist of not less than three members not associated with the Ministry of Transport.

In order to achieve complete independence the members of the Board should be appointed by the Governor in Council for a term certain and be eligible for re-appointment.

In addition to its other responsibilities, the Board should submit an annual report to Parliament through a minister of the Crown setting out its activities for the year. Included in such report would be the various recommendations made in the accident and incident reports delivered by it and the responses by the Air Administration to such recommendations. I am not as concerned as others appear to be that if the Board were to report to Parliament through the Minister of Transport, it would diminish its independence. However, there may be conflicts, or at least legitimate differences of opinion, between the independent tribunal and the Air Administration, and because of the potential conflict, I agree with the submissions made by all those who made representations in this regard that it would be preferable if the Board reported to Parliament through a minister other than the Minister of Transport.

PART X

PRIVILEGE WITH RESPECT TO EVIDENCE OBTAINED BY INVESTIGATORS

During the course of the hearings a privilege was asserted for the following materials and evidence which are obtained in the course of an investigation of an aviation accident or incident by investigators.

(1) cockpit voice recorders

(2) air traffic control tapes

(3) witnesses' statements

Bill C-40 provided a limited privilege with respect to each of the above. The relevant provision was Section 21 which provides:

> "(1) In this section, 'voice recording' means any aircraft cockpit voice recordings and any voice recordings of aircraft-to-ground communications and ship-to-shore communications.
>
> (2) Subject to subsections (5) and (6), every voice recording that relates to an accident or incident that the Office of the Commissioner investigates is confidential and no one shall allow any person to inspect or have access to any such recording or to communicate or allow to be communicated any extract or quotation obtained from such a recording unless at the time of the inspection or access to the recording or the communication of the extract or quotation that person is engaged in carrying out the work of the Office of the Commissioner under this Act or is engaged in the administration of coordinated investigations into the accident or incident pursuant to section 11.
>
> (3) Where, during the course of an investigation by the Office of the Commissioner into an accident or incident, an investigator acting under this Act
>
> (a) obtains a statement, either in writing or by a recording device, relating to the accident or incident, and
>
> (b) certifies that the statement was made with the understanding that the statement and its source would be treated confidentially.
>
> then, subject to subsection (6), the statement and its source are confidential and no one shall allow any person to inspect or have access to the statement or to communicate or allow to be communicated the

source of the statement or any extract or quotation obtained from the statement unless at the time of the inspection or access to the statement or the communication of the source or the extract or quotation that person is engaged in carrying out the work of the Office of the Commissioner under this Act or is engaged in the administration of coordinated investigations into the accident or incident pursuant to section 11.

(4) Notwithstanding any other Act or law but subject to subsections (5) and (6), no person who is engaged in carrying out the work of the Office of the Commissioner under this Act or who is engaged in the administration of coordinated investigations into an accident or incident pursuant to section 11 shall be required in connection with any disciplinary or legal proceedings to give evidence that relates to any voice recording referred to in subsection (2) or any statement and its source referred to in subsection (3) or that expresses an opinion as to the contributing factors or causes of an accident or incident investigated under this Act.

(5) The Commissioner may make available to the public any voice recording referred to in subsection (2) or any extract or quotation obtained therefrom if in the opinion of the Commissioner the interests of transportation safety would thereby be served.

(6) In any court proceedings, the court may examine any voice recording referred to in subsection (2) or any statement referred to in subsection (3) and, if the court concludes in the circumstances of the case before it that the public interest in the proper administration of justice outweighs in importance the confidentiality attached to the voice recording or the statement by virtue of this section, the court may order the production and discovery of the voice recording or the statement, subject to such restrictions or conditions as the court deems appropriate, and may require any person who is engaged in carrying out the work of the Office of the Commissioner or who is engaged in the administration of coordinated investigations into an accident or incident pursuant to section 11 to give evidence that relates to the voice recording or the statement."

The interested parties that appeared before the Commission did not in the majority support the Bill in this respect. Some contended for an absolute privilege, while others submitted that there should be no privilege at all.

(1) COCKPIT VOICE RECORDERS (CVR)

A cockpit voice recorder records everything that may be overheard in the cockpit of an aircraft. It was made mandatory for commercial aircraft having a maximum

certificated take-off weight of more than 12,500 pounds by ANO Series II, No. 14 which requires that the cockpit voice recorder "be operated continuously from the start of the use of the checklist before starting the engines of the aeroplane for the purpose of a flight to completion of the final checklist at the termination of the flight". It is the property of the carrier.

It has a 30 minute loop so that only the last 30 minutes are recorded and what is transcribed earlier is erased.

In the investigation of an accident or incident the recording becomes an invaluable tool for the investigator. However, it records not only conversations which may be relevant in the determination of the cause of an accident or incident, but also records conversations of a personal or private nature, which cast no light on the cause of the accident or incident. A publication of the conversations of the latter nature could prove embarrassing. The pilots complain that the cockpit voice recorder is an unprecedented invasion of privacy, and that no other employees are subjected to electronic eavesdropping in their work place. Although they recognize the necessity of such a recording device, their claim is that it should be used only by accident investigators, and for the sole purpose of assisting them in the determination of the cause of the accident in aid of preventing future accidents as a result of the information obtained. In order to ensure such exclusive use of the cockpit voice recorder, they seek legislation which would permit only the accident investigators to have access to the cockpit voice recording, and a ban on the publication of its contents.

It was also pointed out that the tape can be tampered with in two ways:

(1) the air crew can fail to stop it after landing so that the tape is recording nothing and the last 30 minutes of recording during flight is erased; or

(2) the air crew can stop it in flight.

It was suggested that the indiscriminate publication of that which is recorded in the cockpit voice recorder might impel pilots to take advantage of either of these two methods available to tamper with it.

Agreements or understandings exist between the various major airlines and their crews as to the limited use to be made by the former of cockpit voice recorders. The emphasis of these agreements or understandings is to ensure that cockpit voice recorders will not be used for disciplinary purposes. Typical is the agreement with PWA which provides as follows:

> "32.15 Cockpit voice recorders and flight data recorders as currently installed will not be used as a primary means of seeking out information for disciplinary purposes. However, data from such equipment may be used to substantiate information received from other sources. Prior to installation of any other airborne recording devices, the Company and the Association will meet to discuss the uses to which such devices may be put."

Although it was stated in the submission of The Advocates' Society that "the Society does know that the accident investigation branch which, of course, seizes the CVR tape immediately following an accident claims that there is some 'agreement' and/or 'understanding' with the Canadian Air Line Pilots Association that the contents of the CVR tape shall only be disclosed to the air crew or their representatives. . . .", there was no evidence of any such agreement or understanding. Moreover the alleged parties to it have no knowledge of any such agreement or understanding.

(2) AIR TRAFFIC CONTROL (ATC) TAPES

This device records all air-to-ground communications, is located in the terminal and is the property of the Department of Transport. The conversations recorded are only those passing between the pilot and the controllers. It does not contain all the conversation engaged in by the controller. Accordingly, social and other idle conversation is not included. Furthermore, the conversations can be overheard by other pilots and anyone with the necessary equipment to receive the radio waves. These tapes include part of the communication which is recorded on the cockpit voice recorders, namely, utterances of the pilot to the controller.

It is apparent therefore that the same considerations do not necessarily apply to these tapes. It was not contended that the information would cease to be available, nor that the device constituted a recording of an employee's total conversation.

CATCA, however, submitted that ATC tapes and CVRs should be treated in the same fashion. They rely in particular on the fact that a clause in their Collective Agreement recognized the importance of restricting use of ATC communications. This provision was inserted in the agreement after several indiscriminate releases of ATC tape recordings by DOT Regional offices. The provision in the Collective Agreement is clause 6.06 and provides as follows:

> "With respect to the conditions laid down in MANOP 2208.3 (or its replacement relating to the play back of recorded information), it is incumbent upon the Employer to treat tape recordings and transcripts of ATC communications as restricted information not (normally) available to the public. However, in cases where Department of Transport legal counsel has determined that there will be no departmental involvement in any subsequent civil litigation the Employer may permit lawyers to make their own transcript under supervision."

(3) WITNESSES' STATEMENTS

During the course of an aircraft accident the investigators interview numerous persons who have information which bears on the cause of the accident. In many cases this information is of a sensitive nature. Particularly in identifying human factors the accident investigators may find it necessary to enquire into the health or habits and behaviour of parties who were involved in the operation or control of an aircraft. The relatives of a deceased pilot may be interviewed and encouraged to disclose what would otherwise be private information. In order to obtain this information the investigators often expressly or by implication offer the interviewee confidentiality with respect to the information elicited.

As I have mentioned earlier in this report in outlining the philosophy of the Accident Investigation Divison of the Aviation Safety Bureau, the accident investigators forcefully and conscientiously assert that this information should remain confidential as its sole use should be to prevent future accidents. They claim that all such information should remain in their files and not be made available to others. They are of the opinion that the source of their information will dry up unless absolute confidentiality can be guaranteed to their informants.

It is not apparent that this information can enjoy complete confidentiality even if its use is limited as suggested. The accident investigator is required to produce a report which is made public. The report canvasses the factors contributing to the accident. In arriving at conclusions, the author of the report must of necessity refer to the evidence which supports them. The substance of the information obtained "in confidence" would therefore be given although the identity of the informant need not be revealed.

CURRENT STATE OF THE LAW ON PRIVILEGE

In the development of the common law a rule evolved in the litigation process giving a court a discretion to refuse production of a document, although relevant and otherwise admissible, if it would be injurious to the public interest to disclose it. Where the document was in the possession of the Crown and the Crown resisted production, it became the practice of the responsible Minister to depose that the production of the document would injuriously affect the due administration of his department and would be contrary to the public interest. For a time the affidavit of the Minister would be accepted by the court at face value and production would be refused. But what of the litigant's right to a fair trial, which right might be adversely affected by such a ruling.

There is also a public interest in the administration of justice, and thus the two assertions made in the name of public interest compete. These two aspects of competing public interest were discussed by Lord Reid in the case of Conway v. Rimmer [1968], A.C. at p. 940, as follows:

> "There is the public interest that harm shall not be done to the nation or the public service by disclosure of certain documents, and there is the public interest that the administration of justice shall not be frustrated by the withholding of documents which must be produced if justice is to be done."

It thus became the duty of the court in each case to weigh the competing interests and to decide which interest had to prevail in the particular case. In order to do so, and without any reflection on the honesty and integrity of the minister, except in those cases where the public interest to be protected was one of national security or such like matter, the practice was changed, and the court required production of the challenged material so that it could examine it to consider its cogency. The court would thus be in

a position to make an appropriate determination. That is what occurred in the case of Australian National Airlines Commission and The Commonwealth of Australia and Another, (1975) 132 C.L.R. 582 where a claim of privilege was asserted with respect to a cockpit voice recorder tape. Mr. Justice Mason observed as follows at pp. 585 and 586:

> "I now propose to indicate very briefly that after hearing the application made on behalf of the defendant Canadian Pacific Airlines for leave to inspect the cockpit voice recorder tape installed in the plaintiff's aircraft, and having taken into account the objection to production advanced by the plaintiff and the Commonwealth, supported by affidavits, including an affidavit sworn by the Minister for Transport, claiming that the public interest would be prejudicially affected by any disclosure of the tape, I thought it advisable to defer ruling on the application until such time as I heard the tape.
>
> Having heard the tape in Melbourne yesterday, I am satisfied that it contains material which is relevant to the issues which arise for determination in this action and which could significantly influence its outcome. I am mindful also that the plaintiff had earlier played the cockpit voice recorder tape in the presence of its legal advisers and is aware of its contents and that the defendant Commonwealth had played the tape when making a duplicate copy whilst the tape was in its possession. In these circumstances I am satisfied that the defendant, Canadian Pacific Airlines, will suffer serious prejudice in the trial of this action if it is denied access to the tape and that it would be unfair to deny it the access that it seeks.
>
> In coming to this conclusion I have had close regard to the minister's objection, based on the public interest, arising from possible detriment to air safety which may result from threatened industrial action on the part of the pilots to terminate the use of the cockpit voice recorders if the cockpit voice recorder tape in this case is disclosed. There is, however, a countervailing public interest, that which arises from the importance of maintaining public confidence in the independence of the judicial process and of preserving the right of the litigant to a fair trial. It is with these and other considerations in mind that I have granted access to counsel for the parties to two short sections of the cockpit voice recorder tape on terms that they are not to be disclosed to any person until further order. Having regard to the importance and the novelty of the claim to privilege which has been advanced, I shall, during the course of the trial, deliver detailed written reasons for my decision on this application."

And subsequently at p. 593:

> "The information recorded on the tape was relevant to the issues in the action, in particular to the allegation of contributory negligence on the part of the plaintiff, and might, in the opinion I then held, significantly, even decisively, influence the outcome of the action - an opinion which has since been

confirmed. In the result, I concluded that on balance the public interest was better served by allowing, rather than refusing, inspection of the tape. In so deciding, I had two principal considerations in mind.

The first is that it is central to our conception of the administration of justice that documents relevant and material to the issues arising in litigation should not be withheld from the parties and that each party enjoys as an incident of his right to a fair trial the right to present as part of his case all the relevant and material evidence which supports or tends to support that case. The existence of Crown privilege as an acknowledged exception should not be seen as a reason for diminishing the force or the importance of this conception of the administration of justice, but rather as embracing a group of 'exceptional cases' in which the public interest in the proper administration of justice has been outweighed by a superior public interest of a self-evident and overwhelming kind.

The second consideration, closely connected with the first, is the need to maintain public confidence in the administration of justice. The withholding from parties of relevant and material documents, unless justified by the strongest considerations of public interest, is apt to undermine public confidence in the judicial process. This is of particular importance here where an industrial union, not a party to the proceedings, objects to the making of the order sought and to the admission in evidence of the tape and threatens by industrial action to terminate the use of CVRs, thus causing the detriment to the public interest now apprehended. It would be quite intolerable if the Court were to deprive a party of the ordinary incidents of a fair trial in the face of threatened action of this kind when it has appeared that the material sought to be excluded could have, as indeed it has had, a decisive influence on the outcome of the action."

With respect to Crown privilege in the Federal Court, section 41 of the Federal Court Act, which is said to have codified the common law, provides as follows:

"(1) Subject to the provisions of any other Act and to subsection (2), when a Minister of the Crown certifies to any court by affidavit that a document belongs to a class or contains information which on grounds of a public interest specified in the affidavit should be withheld from production and discovery, the court may examine the document and order its production and discovery to the parties, subject to such restrictions or conditions as it deems appropriate, if it concludes in the circumstances of the case that the public interest in the proper administration of justice outweighs in importance the public interest specified in the affidavit.

(2) When a Minister of the Crown certifies to any court by affidavit that the production or discovery of a document or its contents would be injurious to international relations, national defence or security, or to federal-provincial relations, or that it would disclose a confidence of the Queen's Privy Council for Canada, discovery and production shall be refused without any examination of the document by the court."

It is to be noted that if the claim of privilege were asserted under subsection (2), then discovery and production shall be refused without any examination of the document by the court. That subsection would seldom be applicable to the production of cockpit voice recorders, air traffic control tapes or witnesses' statements which heretofore would have been governed by section 41(1).

Although there have been cases where Crown privilege has been successfully asserted with respect to such material as is under discussion here, the modern trend of judicial precedent has been in favour of production and discovery and against the creation of an absolute privilege. It is for this reason that ministers of the Crown have, quite understandably of late, been hesitant to assert a claim of privilege with respect to documents in the possession of the Crown when sought in litigation in view of the unlikely success of such an assertion.

It was the failure to make such an assertion of Crown privilege attaching to information gathered by accident investigators when such information was being sought in litigation which, as I have outlined earlier in this report, created dissatisfaction amongst the accident investigators.

An independent basis for asserting privilege was recognized by the judgment of the Supreme Court of Canada in Slavutych v. Baker [1976], 1 S.C.R. 254. In that case Mr. Justice Spence, speaking for the court, was prepared to extend privilege to a communication that would not have been otherwise privileged on the basis of the application of four fundamental conditions propounded in Wigmore on Evidence, 3rd ed., vol. 8 (McNaughton Rev., 1961) as follows:

> "(1) The communications must originate in a confidence that they will not be disclosed.
>
> (2) This element of confidentiality must be essential to the full and satisfactory maintenance of the relation between the parties.
>
> (3) The relation must be one which in the opinion of the community ought to be sedulously fostered.
>
> (4) The injury that would inure to the relation by the disclosure of the communications must be greater than the benefit thereby gained for the correct disposal of litigation.
>
> Only if these four conditions are present should a privilege be recognized."

It is unlikely that a stronger case could be made for the existence of a privilege by the application of the test in Slavutych v. Baker than could be made for the existence of a Crown privilege.

The privilege that I have discussed to date arises when documents are being sought in litigation.

Of more recent date, another aspect of public interest has been asserted, i.e., the public access to information in the possession of departments of government, and is reflected in the Access to Information Act now under consideration by Parliament.

By Bill C-43 (First Reading July 17, 1980) section 41 of the Federal Court Act would be repealed, and the following provision substituted:

> "36.1 (1) A Minister of the Crown or other person interested may object to the disclosure of information before a court, person or body with jurisdiction to compel the production of information by certifying orally or in writing to the court, person or body that the information should not be disclosed on the grounds of a specified public interest.
>
> (2) An objection to disclosure referred to in subsection (1) may be reviewed by a superior court, in which case the court may examine or hear the information in respect of which the objection was made and order its disclosure, subject to such restrictions or conditions as it deems appropriate, if it concludes that, in the circumstances of the case, the public interest in disclosure outweighs in importance the specified public interest."

That section only relates to the disclosure of information before a court, person or body with jurisdiction to compel the production of information. Other provisions of Bill C-43 relate to public access to information unrelated to litigation, some of which will be referred to later.

COMMENT

Production of materials for which privilege is asserted may be sought for the following purposes:

(1) for use by investigators in their investigation and preparation of a report;

(2) as evidence in civil or criminal proceedings;

(3) as evidence in disciplinary proceedings;

(4) by the public for its information.

COCKPIT VOICE RECORDERS

For Use By Investigators

The interests of aviation safety require that this confidential information be available to investigators. In order to determine which parts of the tape are relevant for their purposes, the investigators must be able to listen to it in its entirety, as must the tribunal which is responsible for the publication of any report. Both the investigators and the tribunal must be free to use so much of the tape as is relevant in the manner that they think necessary. They should be at liberty to disclose to parties who may have a direct interest in the matter under investigation so much of the contents of the transcript as may be necessary to pursue an orderly investigation, and if deemed to be necessary in the interest of aviation safety, to produce in their report, or make public at a public inquiry, portions of the transcript which bear on their findings. Those portions of the transcript which do not relate to a contributing cause of the accident under investigation should not be volunteered by either the investigators or the independent tribunal and not delivered up unless required to do so by law.

The principle governing the use or disclosure of the recording by the investigator and the tribunal should be that confidentiality must be maintained unless the interests of aviation safety overbear the interests advanced for preserving confidentiality. But, as I

have observed, the cockpit voice recorder is the property of the carrier which may also come into possession of the recording. As is the case of the investigative tribunal, the carrier should be forbidden to disclose the contents of the tape, or produce it, other than as is required by law.

For Use In Civil Proceedings

If the cockpit voice recorder were absolutely privileged as contended for by CALPA, an injured passenger or the estate of a deceased passenger might be deprived of the only evidence available with respect to the cause of the accident. This would decide, once and for all, against the public interest in the administration of justice. On the other hand, if the tapes were only producible on an order of a judge in civil proceedings, he would be in a position to weigh the public interest in the administration of justice against the public interest in maintaining confidentiality. In weighing these interests, the judge would be able to take into account the damage to the relationship of the pilots and their employers, the availability of the evidence from other sources, the effect of the production of the document on aviation safety and any other submissions which might support a ruling in favour of privilege if objection is taken to production, as well as to the cogency of the material. In order to be able to make that determination, the court might require production of the tape and have an opportunity of reviewing it in its entirety. If production is ordered, only so much of the transcript that is relevant to the issue at trial would form part of the public record, and thus the portions of the tape which are not relevant, but the publication of which might prove embarrassing, would not be disclosed.

It cannot be assumed that the information provided by a cockpit voice recorder would cease to be available if portions of it are held to be necessary in civil proceedings as a result of a ruling by a judge that the interests of justice require it. It would be undesirable to create a privilege on the ground that those seeking it would otherwise not obey the law.

For Use In Criminal Proceedings

Different considerations apply to criminal proceedings which may be taken against pilots. The cockpit voice recorder is mandatory. To permit of its use in criminal

proceedings against the pilot would be to run counter to one of our most basic tenets: nemo debet se-ipsem accusare - no one is required to incriminate himself. This would not give immunity to the pilot from criminal process, but only provide that the mandatory recording should not be used against him in any such proceeding.

Disciplinary Proceedings

The reasons which favour the prohibition of the use of cockpit voice recorders in criminal proceedings are, in my opinion, equally applicable to disciplinary proceedings. Private discussions monitored by the cockpit voice recorder unrelated to an accident or incident investigation may expose the pilot to disciplinary action. It would be unfair if a mandatory recording device put in place only for aviation safety were to be used for such other purpose. Again, the pilot would not be free of disciplinary action, but the case against him would have to be founded upon evidence other than is recorded in the cockpit voice recorder.

By The Public For Its Information

I have every sympathy for the contention of the pilots that a cockpit voice recorder is a unique invasion of their privacy. An absolute privilege is untenable because of the importance of the recorder to aviation safety. Similarly, the public interest in the administration of justice may require portions of the tape, which touch directly on matters in issue in litigation, to form part of the public record, but there does not appear to be any compelling reason for the invasion of privacy to be extended to public disclosure of the entire contents of the tape as a result of Access to Information legislation. By the use made of it by the investigator and the tribunal, the public can be assured that the contents of the CVR are carefully inquired into for the purpose of aviation safety, and that the relevant portions of it will be made public if the investigator and/or the tribunal think by so doing the cause of aviation safety would be advanced.

Subject to the use that must be made by the investigators and may be required by the court, the cause of aviation safety would be prejudiced, I think, if any further use were to be made of that which is recorded. The indiscriminate publication of that which is

recorded in a cockpit voice recorder in the United States has been a matter of grave concern to the pilots. The pilots were right, I think, when they emphasized that no other employees are subjected to recorded eavesdropping of private conversations at their work place. They have a right to be protected from such an invasion of their privacy except in those cases where aviation safety and the administration of justice are paramount.

Bill C-43 contemplates certain exemptions from that which is otherwise provided pursuant to the terms of the statute. Section 16(c) of that Bill provides as follows:

> "any other information the disclosure of which would be injurious to law enforcement, the conduct of lawful investigations or the security of penal institutions."

It could be contended that the contents of the cockpit voice recorder fall within such exemption. However, where an exemption is claimed under section 16(c), as I understand the provisions of the new proposed Bill, there is a right of review. On the other hand, section 25 of the proposed Bill reads as follows:

> "(1) The head of a government institution shall refuse to disclose any record requested under this Act that contains information that is required under any other Act of Parliament to be withheld from the general public or from any person not legally entitled thereto if the Act of Parliament
>
> (a) provides that the requirement to withhold information be exercised in such a manner as to leave no discretion in the matter; or
>
> (b) establishes particular criteria for withholding information or refers to particular types of information to be withheld.
>
> (2) Such committee as may be designated or established under section 72 shall review every provision of an Act of Parliament other than this Act or the Privacy Act that requires information to be withheld from the general public or from any person not legally entitled thereto and shall, within three years after the coming into force of this Act or, if Parliament is not then sitting, on any of the first fifteen days next thereafter that Parliament is sitting, cause a report to be laid before Parliament on whether and to what extent the provisions are necessary."

In order to avoid any ambiguity, the enabling statute should provide that the recording or any transcript thereof obtained by accident investigators from cockpit voice recorders

shall be withheld from the general public and not subject to access pursuant to the provisions of the Access to Information Act.

In summary, the enabling statute should provide that a cockpit voice recording is confidential and not subject to production except,

(a) to accident investigators for their use as outlined above;

(b) to an independent tribunal if such tribunal is established for its use as outlined above;

(c) in civil proceedings when, in the opinion of the judge, the public interest in the proper administration of justice outweighs the importance of any reasons advanced for maintaining confidentiality.

There should also be a prohibition against the publication of the recording or any transcript thereof obtained from a cockpit voice recorder in any other circumstances.

AIR TRAFFIC CONTROL TAPES

For Use By Investigators

As pointed out above, substantially different considerations are applicable to air traffic control tapes than pertain to cockpit voice recordings. They record only the air-to-ground communications and do not intrude upon the private conversations of the controllers at their work place. Since the communications may be overheard by others, the normal test of confidentiality is not met. The air traffic controllers take no issue with the right of the investigators to have access to the tape and to make use of it for the purpose of aviation safety. Their concern is with respect to the publication of the contents of the tape to others. They join with the pilots in seeking a ban on the publication of the contents. For reasons which I advanced in considering the use which may be made by the investigators of the cockpit voice recordings, in my opinion the accident investigator as well as an independent tribunal should have the right to make such use of the tapes as is necessary for the conduct of an orderly investigation and,

where they think it necessary, to publish such portions of the tape as may be necessary to explain their findings in their reports.

However, in light of the Collective Agreement entered into with the air traffic controllers, wherein the communications recorded are agreed to be "restricted information not (normally) available to the public" save for its use by the investigator and the publication of such portions of it necessary for a report, neither the investigator nor the tribunal should volunteer the contents of the tape, nor should they be produced other than as is required by law.

As Evidence In Civil Proceedings

No grounds have been advanced which, in my opinion, would warrant the application of an absolute privilege to be attached to ATC tapes to make them unavailable in civil litigation, but in view of the contractual obligation, the tapes should only be produced when the litigation process so demands. At such time an opportunity would be afforded to assert a claim for privilege if there are valid reasons for doing so, and only so much of the tape would be admitted as is necessary for the administration of justice.

For Use In Criminal Proceedings

Aviation safety requires that air-to-ground communications be recorded. Most employees are not subject to such monitoring. It is a valid consideration that such recordings should be made use of only in support of the purpose for which they are made, subject to any other paramount consideration. In this respect they are very much like cockpit voice recorders, and there would be an unsettling effect if an air traffic controller were to be subject to the use of such recordings against him in criminal proceedings. As is the case of the pilots, this would not give an air traffic controller immunity from criminal process, but only provide that the recording should not be used against him in any such proceedings.

Disciplinary Proceedings

The use of air traffic control tapes in disciplinary proceedings is already the subject of a Collective Agreement, and it is unnecessary for me to comment on it.

By The Public For Its Information

As is the case of the cockpit voice recorder, there does not appear to be any compelling reason that the contents of the tape should be a matter of public disclosure and, by reason of the Collective Agreement already referred to, the contents of an air traffic controller tape should be included as an exemption in the Access to Information Act and be regarded as within section 16 thereof, reproduced at page 236 above.

However, the contents of the ATC tapes are not subject to the same considerations as would warrant an absolute prohibition of access to cockpit voice recorders pursuant to the Access to Information Act. Members of the public or persons who have a direct interest in the accident may have a legitimate claim to the production of such tapes, and their right to seek production should not be foreclosed. Therefore, unlike the case of cockpit voice recorders, although ATC tapes would be an appropriate exemption for automatic access to the public, the contents of such tapes should be subject to the contemplated review pursuant to the proposed Access to Information statute.

WITNESSES' STATEMENTS

In most cases the evidence of accident investigators as to what was said to them, and the production by them of statements obtained from others would be inadmissible in litigation as hearsay. There are two exceptions:

(a) where the maker of the statement is a party or makes a statement on behalf of a party, and the statement contains admissions;

(b) where the maker of the statement is a witness who gives evidence inconsistent with the statement.

The main ground advanced by those asserting that a privilege should be attached to all statements obtained by the investigators in the course of their investigations is that witnesses would refuse to provide information to accident investigators if these statements could become admissible in legal proceedings. Those who advanced this position opined that this would happen. These opinions were equally matched with the

opinions of others that no such result would flow. It has not been the experience of the National Transportation Safety Board in the United States, where witnesses' statements enjoy no privilege, that their sources of information have dried up. Conversely, there is a danger that witnesses who are assured that their information will not be challenged, nor come under public scrutiny, may take liberties with the facts. This may impair public confidence in the reliability of accident reports.

The practice of accident investigators of assuring confidentiality to those being interviewed should not be encouraged since the investigator cannot in all circumstances carry out his pledge of confidentiality.

In my opinion no satisfactory arguments have been advanced which would warrant any rule of absolute privilege to be attached to witnesses' statements.

For Use By Accident Investigators

The investigator must be free to make such use of the statements obtained in his investigation and in the preparation of his report as he deems necessary. However, it is not the practice of investigators to publish to others information obtained by them, and subject to any order to the contrary by a court or any other tribunal authorized to compel production of documents, such information has always been regarded as confidential. They should be obligated to protect the identity of their informant. Save for such publication as is necessary in the interest of the promotion of aviation safety, they should not volunteer any information obtained by them other than when required to do so by law.

For Use In Civil Proceedings

Section 21(6) of Bill C-40 hereinbefore reproduced recognized a limited privilege to be attached to witnesses' statements, subject to the right of the court to examine them. If, in the court's judgment, the public interest in the proper administration of justice outweighs in importance the confidentiality attached to the statement, the court may order the production and discovery of the statement, subject to such restrictions or conditions as the court deems appropriate. Such a provision, I think, adequately

recognizes the limited privilege which should attach to witnesses' statements in civil proceedings where a claim of privilege is asserted. Failing a claim of privilege, the ordinary rules of admissibility of such statements should govern.

For Use In Criminal Or Disciplinary Proceedings

On the other hand, it cannot be stated with confidence that the foregoing considerations apply so as to justify the use of witnesses' statements in criminal or disciplinary proceedings against the maker. There would be a natural reticence by those being interviewed if the statements made by them could be used against them in criminal or disciplinary proceedings. The accident investigators should have the right to compel the taking of evidence from prospective witnesses, and the enabling statute should provide that statements obtained from witnesses by accident investigators are not admissible in evidence against the maker in criminal or disciplinary proceedings.

By The Public For Its Information

Section 16(c) of the Access to Information Act, which I have set out above, provides as follows:

> "any other information the disclosure of which would be injurious to law enforcement, the conduct of lawful investigations or the security of penal institutions."

It would appear that witnesses' statements obtained by accident investigators would come within the purview of the exemptions hereinbefore set forth. It has long been recognized that the conduct of lawful investigations would be impeded if public access were given to information obtained by investigators in the course of their investigations. That rule should govern information obtained by accident investigators. However, there may be cases where a person has a direct interest in the matter that the investigator inquired into. I have in mind those who may have suffered injury as a result of an accident and are considering whether action should be instituted. Such persons should not be deprived of the opportunity of asserting a right of access to witnesses' statements pursuant to the review provisions of an Access to Information Act. The person

authorized to make the review would have the opportunity then of determining whether, in the circumstances, disclosure would harm lawful investigations conducted by accident investigators.

INFORMATION OBTAINED FROM PHYSICIANS

In many cases accident investigators will seek information from physicians of patients who may have been involved in an aircraft accident. This information is often essential. However, a physician has a duty to maintain the confidentiality of the physician-patient relationship and by disclosing information may also breach provincial statutes. For example, Ontario Regulation 577/75 reads as follows:

> "26. . . . 'professional misconduct' means,
> . . .
>
> 21. giving information concerning a patient's condition or any professional services performed for a patient to any person other than the patient without the consent of the patient unless required to do so by law;"

COMMENT

When a physician provides information on an informal basis to the accident investigator, he may be in breach of a statutory duty as well as his own obligation to maintain confidentiality. The accident investigator should be empowered to demand such information if it is necessary and, if so empowered, the physician would be relieved of his professional and statutory duty to withhold such information.

THE INVESTIGATOR AS A WITNESS

Earlier in this report I have commented on the desire of accident investigators to be free of the judicial process. They would prefer to go about their tasks without being called as a witness in any proceedings which may flow from the accident or incident which they investigate.

COMMENT

One of the principal concerns of accident investigators is that so long as they were within the Air Administration, their testimony could be viewed as partisan, and if it favoured the Crown, their credibility would be challenged. If they became part of an independent tribunal, their independence would be apparent, and their fear of having an appearance of partisanship would be dissipated.

The investigators also regard their attendance in judicial proceedings as a matter of great inconvenience and time-consuming, and which impedes their work in the cause of aviation safety. However, in some cases the evidence obtained by investigators may be crucial in determining the legal rights of the parties involved in litigation. In that respect, I think the inconvenience, which is one shared by many others, should give way to the contribution which accident investigators could make in the administration of justice.

Concern has been expressed as to investigators giving opinion evidence as distinguished from factual testimony. Investigators employed by the National Transportation Safety Board are prohibited by statute from giving opinion evidence. I question the rationale of that position. The right to give opinion evidence is a limited one, but if the investigator is qualified and is testifying with the posture of one who has no interest in the litigation, I can see no valid basis for an exclusionary rule which would deprive the court or litigants of the benefit of that opinion.

In short, I do not favour any statutory provision which would give an immunity to accident investigators from testifying in judicial proceedings.

PART XI

RELATIONSHIP OF ACCIDENT INVESTIGATORS WITH CORONERS

By letter, dated December 10, 1979 from the then Minister of Transport, the Commission was requested to enquire into this subject which was considered to come within the Terms of Reference of the Commission. The apparent reason for the request was the recurrence of questions concerning the interrelation between the activities of provincial coroners and the Office of the Commissioner proposed to be established by Bill C-40. As a result the Commission devoted a separate part of the Inquiry to this matter.

The institution of the coroner's office dates back to the earliest days of the common law, pre-dates Confederation and continues to flourish under provincial jurisdiction in all provinces of Canada. Although the powers vested in this institution are exercised by different kinds of officials in different provinces, they generally all have the mandate to determine in the case of fatalities who the deceased was, and how, when, where and by what means he came to his death. This jurisdiction of the coroners' office extends to and includes the investigation of deaths occurring as a result of aviation accidents. Inevitably such investigations come in contact with investigations conducted by federal investigators empowered under the Aeronautics Act. The investigations may cover many of the same matters. The principal distinction is that the federal responsibility is to investigate the cause of the accident and the provincial responsibility is to investigate the cause of death. It is apparent that the events relevant to each are by no means mutually exclusive.

Potential conflicts can arise as a result of the following:

(a) provisions of both the Aeronautics Act and provincial acts authorizing their respective officials to seize the wreckage of the aircraft;

(b) provisions of both the Aeronautics Act and provincial acts authorizing the seizure of remains and conduct of autopsies;

(c) attempts by investigators assisting the coroner to obtain information from federal investigators who are reluctant to provide it;

(d) a contest over possession of relevant documents seized by one team of investigators to the exclusion of the other;

(e) federal investigators are summoned to appear at coroners' inquests where they are cross-examined by interested parties, compelled to produce documents and to give evidence both factual and opinion, all at the expense of a considerable percentage of their time.

The Commission heard evidence from the Director of the Aviation Safety Bureau, the National Association of Chief Coroners and Chief Medical Examiners of Canada, the Director of Civil Aviation Medicine and from a number of provincial governments who presented briefs under the auspices of the Solicitor General, Attorney General or other responsible Minister of the provincial Crown.

The evidence revealed that prior to the introduction of Bill C-40 there was developing a commendable degree of cooperation between federal and provincial authorities which avoided the potential conflict referred to above. This cooperation was achieved as a result of ad hoc arrangements and understandings between federal and provincial officials.

When it became known that the federal government was considering the establishment of an independent commission of aircraft accident investigation, efforts were made to finalize these informal arrangements. A draft Memorandum of Understanding was prepared with respect to some of the areas of cooperation. This Memorandum has not been signed in any province, but has gained acceptance in many provinces as a guideline. The Memorandum of Understanding is as follows:

"0.0 For the purposes of this memorandum the following definitions apply:

0.1 **coroner** - means any coroner, medical examiner or other official statutorily responsible for officially establishing the cause(s) of sudden deaths that are unexpected or unexplained;

0.2 **operator** - means person in direct command or conduct of a vehicle;

0.3 **safety investigator** - means any investigator employed by the Department of Transport or the Canadian Transport Commission who is appointed for the purpose of identifying the deficiencies leading to fatal accidents in the air, marine and rail transportation modes.

1.0 Because of the nature of their respective responsibilities, coroners and safety investigators invariably find their activities intermeshing. If one party acts without taking into account the needs of the other, the roles of both subsequently suffer in the ensuing conflict, a condition clearly not in the public interest. The purpose of this memorandum is to describe the ways in which the two parties will coordinate their activities with each other and to identify methods of proceeding which will ensure that each party is able to respond effectively to its own unique responsibilities without impairing the operations of the other. Only if this is achieved will the total public interest be served.

2.0 Each party hereto accepts the responsibility to ensure that in the course of its activities it acts in such a way as to minimize any interference with the operations of the other. Specifically both parties recognize that:

2.1 the coroner's statutory obligation requires him to inquire into sudden deaths that are unexpected or unexplained and determine (a) who the deceased was, (b) how the deceased came to his death, (c) when the deceased came to his death, (d) where the deceased came to his death, and (e) by what means the deceased came to his death. Recommendations may be made in respect of any matter arising out of the inquest.

2.2 the safety investigator's obligation to the public requires that he identify for the transportation community the deficiencies in the transportation systems which combined to render an accident inevitable, and to propose changes which would eliminate recurrences.

3.0 Both parties agree that the coroner has basic jurisdiction over the human remains but it is further agreed that the safety investigator may have examinations conducted which go beyond those required by the coroner including an autopsy should the coroner not need one for his purposes. Upon completion of an autopsy it is agreed a copy of the autopsy report will be provided to the safety investigator. Formal arrangements should be made between the coroner and the investigator as to who will notify next-of-kin and keep them informed.

4.0 Both parties agree, that although each may have an interest in the wreckage, the safety investigator has immediately available to him the knowledge, skills and resources to conduct a comprehensive and

coordinated examination of the scene and hence in most instances it is in the public interest for him to examine the wreckage on behalf of both parties. Further, it is agreed that when this occurs, the safety investigator will make an accounting of what he observed at the scene available to the coroner within a reasonable period of time including any information which would assist the coroner in identifying the victims.

5.0 In the course of investigating an accident, frequently both parties have an interest in the same documents relating to the man, the vehicle, the environment and the conduct of the operation. It is recognized and agreed, that since the investigator's conclusions have no legal force, he has no need of any original document except to make copies or extracts, leaving the original with the owner and subsequently directly accessible to the coroner.

6.0 Some continuously recording devices which monitor the performance of the operator and/or the vehicle have been made mandatory by safety regulations. As with other vehicle components it is under the direct control of the operator. If such safety devices are indiscriminately used to establish blame or responsibility or cause distress to the operator, he will be discouraged from ensuring that the device functions continuously during vehicle operation. Thus both parties agree that such devices are intended only for safety purposes and agree that the safety investigator's advice will be sought in each case on the most judicious way of employing this sensitive record to ensure its continued availability through the operators' full cooperation.

7.0 Both parties recognize that although their objectives have some similarity the techniques and procedures of each are unique. This is particularly true in the area of witness questioning. Whereas the coroner's process is highly formalized, safety investigators employ an informal, intimate type of interview process. This latter technique which relies upon the ability of the interviewer to gain the full confidence of the interviewee has been proven to be highly productive of vital safety information. Subsequent revelation of the interviewee's confidence constitutes a breach of faith and consequently damages the productive relationship between the safety investigator and the transportation community. Because safety investigators are interested in adequacies in the performance of functions, rather than in the identities of the individuals performing the functions, for the prevention of recurring accidents, their orientation renders them disinterested in the identification of who is responsible for an accident. Their questioning of witnesses, therefore, might be as incomplete for the coroner's purpose, as is police questioning for safety investigators. It is agreed, in the public interest, that the parties function independently in the matter of witness examination.

8.0 Each party agrees to pay the cost of services provided by the other which are in excess of those the provider of these services requires to meet his own obligations.

9.0 The parties hereto agree that this document constitutes a 'code of conduct' for two professional groups, coroners and safety investigators."

The evidence which the Commission heard, which included a survey of regional aviation medical officers in all regions of Canada, indicated that the main problem concerning provincial authorities is the fear that the spirit of cooperation which was developing as reflected in the Memorandum of Understanding will be eroded by the enactment of Bill C-40. Some of these fears might not be well founded on the basis of a proper interpretation of the provisions of the Bill, but nevertheless deserve serious consideration.

Concern was expressed that the exclusivity conferred on the Office of the Commissioner by virtue of Bill C-40 will give it a feeling of independence with little need to continue to cooperate with provincial authorities. It should be noted that Bill C-40 does not purport in any way to invade the jurisdiction of the provincial coroner.

Additionally, fear was expressed that s.19 of Bill C-40 which provides for an interim report on a confidential basis to any coroner or police investigating the accident will be interpreted as the sole obligation to provide information. It is the concern of provincial authorities that this will impede the exchange of information. Furthermore, it is pointed out that s.21(6) which gives the court in any court proceedings a discretion to compel production of voice recorders and witnesses' statements does not apply to a coroner.

From the federal side the Director of the Aviation Safety Bureau confirmed that potential conflicts had been minimized by these cooperative efforts. His chief complaint was with respect to the disruptive effect on the work of federal investigators occasioned by coroners' inquests. It appeared from the evidence that coroners' inquests have been used by interested parties as part of the discovery process and that some hearings have gone beyond their traditional purpose. The following description of an inquest is pertinent:

> "In a recent case, the inquest was extraordinarily demanding. It was held in four separate sessions. Safety investigators attended each. It is estimated that 49 man-days were absorbed by the hearings alone, but this is only a part of the consequences. In response to pressures from parties of standing all safety investigation documents on the accident were provided to the coroner.

> In all, 28 lbs. of documents, many incomplete, for the investigation was still underway, were gathered together and shipped. Only one party of standing gave the documents anything more than a cursory examination and some did not bother to examine them at all. The coroner and the jury benefited little. The investigators paid the cost with three weeks of lost time while the documents were unavailable to them. It is difficult to calculate the total impact on the safety process but the diversion of financial, personnel and time resources was substantial. Fortunately, each of the ninety fatal accidents annually do not demand resources to this extent."

The Director concluded his evidence on this point as follows:

> "At one time safety investigators spent less than 5% of their time involved in processes related to the administration of justice. It is now approaching 30% and there is every indication that this trend will continue. Although the coroners' system constitutes only a part of the demand, the trend is the same. In two or three years, if no change occurs, half of a safety investigators time will be spent in legal involvements."

Bill C-40 gives the nod of approval to arrangements such as the Memorandum of Understanding in s.4(2) which provides as follows:

> "The Commissioner shall ensure that, in relation to the duties of the Office of the Commissioner, the accident investigation procedures and practices followed by the Office of the Commissioner at accident sites are compatible with any accident investigation procedures and practices followed by any police or coroners at such accident sites and the Commissioner may enter into agreements with any police or coroners setting out the rules to be followed at accident sites in order to ensure that such procedures and practices are as compatible as is reasonably possible."

This provision is criticized on a number of grounds. It is limited to agreements with respect to practices and procedures at accident sites which presumably would only cover such potential areas of conflict as set out in (a) and (b) above, namely, seizure of the wreckage, seizure of remains, and the conduct of autopsies. Provincial authorities urge that it should cover other matters.

This provision is also criticized because it is permissive and not mandatory. However, a provision to enter into an agreement can only be mandatory if it applies to both parties to the agreement. This could not be done without invading provincial jurisdiction with respect to coroners.

In the excellent brief submitted to the Commission by Dr. W. J. McArthur, Chief Coroner for the Province of British Columbia, which was supported by oral testimony given by him, he states:

> "... We consider it essential the Commissioner enter into agreements not with the police or coroners as previously stated, but with the more appropriate Provincial authority, namely the Attorney-General. In this way consistent and uniform procedures could then be implemented throughout the Province. The present wording of this section suggests agreements could be made 'ad hoc' with local authorities after an accident has taken place. This we believe is too late and too prone to inconsistencies in procedures to be in the public interest. . . ."

COMMENT

In view of the respective jurisdictions of the provincial coroners and federal investigators being firmly entrenched in constitutional terms, the only resolution of any of the potential conflicts which may arise must be by way of agreement. The submissions of some that the jurisdiction to investigate all fatal aircraft accidents should be assigned exclusively to coroners is as untenable as the alternative submission that the jurisdiction to investigate such accidents should be assigned exclusively to federal investigators.

Although the entering into an agreement cannot be made mandatory, a duty can be imposed on the independent tribunal to confer with provincial authorities and to make every reasonable effort to enter into such an agreement. I agree with Dr. McArthur that such agreements should not be entered into with the police or coroners, but with the Attorney General of the province, the Chief Coroner of the province or other responsible Ministers of the provincial Crown.

Consideration should be given to including in the agreement, in addition to the matters referred to in section 4(2) of Bill C-40 and in the Memorandum of Understanding, the following:

(a) A provision regulating the attendance of accident investigators at coroners' inquests;

(b) A provision with respect to the delegation of federal authorities to provincial authorities and vice versa of matters where there is a duplication. Dr. McArthur's evidence contains an excellent example. He pointed out that the British Columbia coroner's office is a well-equipped facility staffed with capable personnel for the investigation of the human factor aspect of accident investigations. It was Dr. McArthur's opinion that this facility would be quite capable of carrying out a human factor investigation which would be the equal of a federal investigation. An agreement which would enable the federal authorities to make use of the findings of this facility would avoid needless public expense which is occasioned when both federal and provincial authorities conduct a parallel investigation;

(c) Provisions with respect to any other matters which would eliminate a duplication of effort, or which would eliminate conflict.

PART XII

RECOMMENDATIONS

I have endeavoured in the various comments, which I have made throughout this report, to set forth the reasons for the recommendations which now follow:

AN INDEPENDENT TRIBUNAL

1. The creation of a tribunal independent of any department of government to be called the "Canadian Aviation Safety Board".

Comment

In most cases the name given to a tribunal may not be of particular significance. In this case, however, I think it is important to emphasize the real objective of the tribunal. For that reason, I think the word "safety" should be included in the name of the new independent tribunal. Safety is defined as "freedom from danger or risk". The responsibility for the aviation safety system is that of the Air Administration, and in subsequent reports I will be commenting on the many proposals received as to the manner in which the aviation safety system can be improved. No aviation safety system can achieve safety in absolute terms, yet the objective of the Air Administration must be to seek such a goal. It is realistic to anticipate that there will be failures in any aviation safety system, but it is the analysis of such failures which can determine the weaknesses of the system, and from which analysis steps can be put in place to strengthen it. The analysis of the aviation safety system must be that of an independent tribunal. The function of the tribunal should be much more than the investigation and reporting of accidents and incidents, as important as that function is. Such activities are merely steps to be taken towards the ultimate objective of the tribunal which should be that of accident prevention. The tribunal's sole concern must be that of aviation safety. Assigning the name, Canadian Aviation Safety Board, to the new tribunal should not in any way reduce the safety consciousness of the regulatory authority. Amongst its other duties, the regulatory authority will still be responsible for making safety-oriented regulations to correct an aviation safety system deficiency discovered as a result of an investigation carried out by the Board.

JURISDICTION

2. The Canadian Aviation Safety Board should have the jurisdiction to investigate all civil aircraft accidents.

3. The Canadian Aviation Safety Board should have the jurisdiction to investigate all civil aircraft incidents.

4. The Canadian Aviation Safety Board should have the jurisdiction to investigate all potentially hazardous practices and situations in civil aviation.

5. The Canadian Aviation Safety Board's jurisdiction should be limited to aviation, and the consideration of a multi-modal tribunal should be postponed.

6. The enabling legislation creating the Canadian Aviation Safety Board should include a statement of objective underlining the fact that aircraft accident and incident investigations are conducted in order to determine the facts, conditions and circumstances relating to each accident or incident and the probable cause thereof, with a view to ascertaining measures which will best tend to prevent similar accidents or incidents in the future, and not for the purpose of apportioning blame or liability.

7. The enabling statute should make it clear that the tribunal is not a judicial body nor a regulatory authority.

STATUS OF INTERESTED AND INVOLVED PARTIES

8. The tribunal should have the authority and discretion to assign to the accident investigation team experts from the Air Administration, various associations, or other individuals who may have special knowledge of the problem being inquired into so long as such experts or individuals demonstrate objectivity, reserving the right of removal if objectivity is not maintained.

9. The Canadian Aviation Safety Board should be empowered to grant observer status to those who may have a direct interest in the subject matter of the investigation, but who are not assigned to the investigation team.

REPORTS

10. Before the issuance of a report, anyone who has a direct interest in the findings of the Canadian Aviation Safety Board should be made aware of the draft report before it is finalized and have an opportunity to make submissions.

11. In receiving submissions of involved or interested parties, the Canadian Aviation Safety Board should be free to receive them in a manner which it deems most helpful in carrying out its objects and in a non-adversarial atmosphere.

12. The Canadian Aviation Safety Board should not be bound by the rules which govern judicial or quasi-judicial bodies, or administrative tribunals which determine the rights of parties, but should have the obligation of considering the submissions made to it.

13. There should be no appeal from any findings of the Canadian Aviation Safety Board.

14. Where an investigation has been undertaken by the Canadian Aviation Safety Board, a report should be prepared and in every case be made public.

15. The Canadian Aviation Safety Board should have the right to reconsider its findings even after publication of its report.

SAFETY RECOMMENDATIONS

16. Whenever possible, a report published by the Canadian Aviation Safety Board on an accident or an incident should include safety recommendations, which should be general in nature.

17. All recommendations should be forwarded to the appropriate division or section of the Air Administration, and in matters of urgency the Canadian Aviation Safety Board should be authorized to forward its findings and recommendations, even though tentative, before the completion of its report to such appropriate department.

18. The Air Administration, which has the responsibility to determine what action, if any, is to be taken in response to such recommendations, must advise the Canadian Aviation Safety Board, in writing, within a period of ninety days after it has been notified of the Board's findings and recommendations, or such longer period as the Board may permit, of what action, if any, it has taken or proposes to take in response to those findings or recommendations. If the Air Administration determines that no action should be taken, its reasons for arriving at that conclusion must also be stated, which response should also be a matter of public record.

INCIDENT REPORTING SYSTEM

19. A voluntary incident reporting system should be introduced on an experimental basis for a period of years, following which further consideration can be given to the necessity of a mandatory incident reporting system.

20. The voluntary incident reporting system should be administered by the Canadian Aviation Safety Board.

21. All incident reports should be made directly to the Canadian Aviation Safety Board.

22. The enabling statute should provide that the incident report could not be used against the reporter in any criminal or disciplinary proceedings.

23. The investigator should be free to make such use of the report as is necessary for the promotion of aviation safety, but the anonymity of the person making the report should be protected.

24. The public report which must follow any investigation should not identify the reporter.

25. The enabling statute should provide that there should be no production of the incident report to those outside the tribunal.

26. The enabling statute should provide that the incident report should not be subject to production pursuant to the proposed Access to Information Act.

PUBLIC INQUIRIES

27. Whenever the Canadian Aviation Safety Board considers that a public inquiry is necessary in the interests of aviation safety, it should conduct such inquiry pursuant to the provisions of the Inquiries Act provided, however, that in any case in which it appears to the Canadian Aviation Safety Board appropriate it may:

    (a) request the Governor in Council to cause an inquiry to be made under Part I of the Inquiries Act; or

    (b) by order, establish a public inquiry, and designate the person or persons to preside over the public inquiry.

    Comment

    It is not intended that the right of the Governor in Council to independently direct a public inquiry should in any way be interfered with and that right obviously should be preserved. Absent such independent action by the Governor in Council, the Canadian Aviation Safety Board would normally conduct any public inquiry except in those cases where there is reason to believe that the conduct of the Canadian Aviation Safety Board is being brought into question.

TRANSITIONAL PROVISIONS

28. The present function of the Aviation Safety Investigation Division of the Aviation Safety Bureau should be assumed and become the responsibility of the Canadian Aviation Safety Board.

29. The present function of the Aviation Safety Engineering Division of the Aviation Safety Bureau should be assumed and become the responsibility of the Canadian Aviation Safety Board.

30. The present function of the Aviation Safety Analysis Division of the Aviation Safety Bureau should be assumed and become the responsibility of the Canadian Aviation Safety Board.

31. The present function of the Aviation Safety Promotion Division of the Aviation Safety Bureau should be assumed and become the responsibility of the Canadian Aviation Safety Board.

32. The activities and personnel of each of the aforesaid divisions should be transferred to the Canadian Aviation Safety Board.

33. The transfer of the activities and personnel of the Aviation Safety Engineering Division should not prevent its services being available to the Air Administration to assist it in its functions, such as Airworthiness, and arrangements should be made between the Air Administration and the Canadian Aviation Safety Board for the sharing of the services of this important facility.

34. Regional aviation safety officers should form part of the Aviation Safety Promotion Division or its equivalent under the jurisdiction of the Canadian Aviation Safety Board.

35. The Air Administration should also have its own aviation safety promotion division.

COMPOSITION OF BOARD

36. The Canadian Aviation Safety Board should be composed of not less than three members. The members of the Board should be appointed by the Governor in Council for a term certain and be eligible for re-appointment.

REPORT TO PARLIAMENT

37. The Canadian Aviation Safety Board should report annually to Parliament through a minister of the Crown other than the Minister of Transport.

PRIVILEGE WITH RESPECT TO EVIDENCE OBTAINED BY INVESTIGATORS

Cockpit Voice Recordings

38. The enabling statute should provide that cockpit voice recordings are privileged and are not to be disclosed save as is hereinafter recommended.

39. The investigators and the Canadian Aviation Safety Board should have free access to cockpit voice recordings.

40. The investigators and the Canadian Aviation Safety Board should be free to use so much of the recording as is relevant in the manner that they think necessary in the interests of aviation safety.

41. The investigators and the Canadian Aviation Safety Board should be at liberty to disclose to parties who may have a direct interest in the matter under investigation so much of the contents of the recording as may be necessary to pursue an orderly investigation and, if deemed necessary in the interest of aviation safety, to produce in their report, or make public at a public inquiry, such portions of the recording which bear on their findings.

42. Those portions of the recording which do not relate to a contributing cause of the accident or incident under investigation should not be volunteered by either the investigators or the Canadian Aviation Safety Board and should not be delivered up unless required to do so by law.

43. The carrier, which owns the cockpit voice recorder, should be forbidden to disclose the contents of the recording or produce it, other than as authorized by law.

44. The cockpit voice recording or any transcript thereof should be produced in civil proceedings when, in the opinion of the judge, the public interest in the proper administration of justice outweighs the importance of any reasons advanced for maintaining confidentiality.

Comment

If the judge orders the production of the recording or any transcript thereof after having had the opportunity of reviewing it in its entirety, I am confident that only so much of it as is relevant to the issue at trial would form part of the public record.

45. The cockpit voice recording or any transcript thereof should not be used against any members of the crew in any criminal or disciplinary proceedings.

46. The enabling statute should provide that the recording or any transcript thereof obtained by investigators from cockpit voice recorders should not be subject to production pursuant to the proposed Access to Information Act.

Air Traffic Control Tapes

47. The investigator and the Canadian Aviation Safety Board should have the right to make such use of air traffic control tapes as is necessary for the conduct of an orderly investigation and, where they think it necessary, to publish such portions of the tape as may be needed to explain their findings in their reports.

48. The investigator and the Canadian Aviation Safety Board should not volunteer the contents of the air traffic control tapes, nor should they be produced other than as authorized or required by law.

49. No special rule of privilege should attach to the use of air traffic control tapes in civil proceedings.

50. Air traffic control tapes should not be used as evidence against any pilot or air traffic controller in any criminal proceedings or disciplinary proceedings save as provided for in any Collective Agreement.

51. Air traffic control tapes should be subject to the proposed Access to Information Act and subject to the review provisions envisaged in that Act in the event that exemption is claimed.

Witnesses' Statements

52. No rule of absolute privilege should be attached to any witnesses' statements obtained by accident investigators.

53. Investigators should not assure confidentiality to witnesses being interviewed.

54. Save for such publication as is necessary in the interest of promoting aviation safety, the accident investigators should not reveal any information obtained from witnesses other than when authorized or required to do so by law.

55. In civil proceedings where a claim of privilege is asserted, if in the court's judgment the public interest in the proper administration of justice outweighs in importance the confidentiality attached to the statement, the court may order the production and discovery of the statement, subject to such restrictions or conditions as the court deems appropriate. Failing a claim of privilege, the ordinary rules of admissibility of such statements should govern.

56. Investigators should have the right to compel persons being interviewed to answer questions put to them, and the enabling statute should provide that such answers are not admissible in evidence against the maker in criminal or disciplinary proceedings.

57. Witnesses' statements should be subject to the proposed Access to Information Act and subject to the review provisions envisaged in that Act in the event that exemption is claimed.

58. The investigator should be empowered to demand information from physicians of those patients who may have been involved in an aircraft accident, but this provision should only apply in provinces where the physician is obliged to provide such information when required to do so by law.

THE ACCIDENT INVESTIGATOR AS A WITNESS

59. There should be no statutory provision granting immunity to accident investigators from testifying in judicial proceedings.

RELATIONSHIP BETWEEN ACCIDENT INVESTIGATORS AND PROVINCIAL CORONERS

60. A duty should be imposed on the Canadian Aviation Safety Board to confer with the Attorney General of the province, the Chief Coroner of the province, or other responsible Ministers of the provincial Crown, and to make every reasonable effort to enter into an agreement which would eliminate conflict and a duplication of effort with respect to matters which are of mutual concern, such as:

(1) the right to possession of the wreckage of an aircraft;

(2) the seizure of remains;

(3) the conduct of autopsies;

(4) the exchange of information;

(5) the possession of relevant documents;

(6) the attendance of federal investigators summoned to appear at coroners' inquests;

(7) the delegation by federal authorities to provincial authorities and, vice versa, of matters where there is a duplication of effort.

MR. HAROLD A. FAWCETT

61. No further disciplinary action or other proceedings should be taken against Mr. Fawcett, and in the event of the creation of an independent tribunal, he should be given an opportunity to serve the new tribunal.

MR. WILLIAM M. HOWES

62. No further disciplinary action or other proceedings should be taken against Mr. Howes.

DR. FRANCOIS DUBE

63. No further disciplinary action or other proceedings should be taken against Dr. Dube, but his work in the future should be limited to the field of aviation medicine and he should not form part of any accident investigation team.

PART XIII

CONCLUSION

The independent tribunal which I am recommending differs substantially in its composition, jurisdiction and objectives from that which was proposed in Bill C-40. In so doing, I am not to be taken as being critical in any way of the work of those persons who prepared the former draft Bill. If I may say so with respect, Bill C-40 was a very worthy initiative and was drafted with great skill and care. However, in arriving at my recommendations, I have had the benefit, not shared by the original draftsmen, of a searching inquiry into the present operation of the Aviation Safety Bureau, and the assistance of all those who presented their very carefully considered briefs and submissions.

With respect to the creation of an independent tribunal, I have sought in this report to comment only upon those matters with respect to which I differ from that which was proposed in Bill C-40. There are many provisions in the former draft Bill which I have not commented upon and which could be readily adapted in legislation to implement that which I am recommending. By way of example, I have not commented upon the procedure for the investigation of an accident involving a civil aircraft and a military aircraft. I feel that section 11 of Bill C-40 adequately addresses that problem and should be adopted.

The recommendations which I have made with respect to the new tribunal are interrelated, and it is important that they should be considered together. If these recommendations were implemented, I am confident that the objectives of the new independent tribunal could be achieved.

SCHEDULE "A"

WITNESSES

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George A. Allison
On behalf of Beech Aircraft Corporation

Dr. Ian Hall Anderson
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Cpl. James Edward Butler
Royal Canadian Mounted Police, Ottawa

Don L. Button
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George C. Capern
Vice President Operations, Air Transport Association of Canada

Wilfred Carpenter
Transportation Coroner, Province of British Columbia

Christine Cavuoto
Vice-President, Canadian Air Line Flight Attendants Association

Capt. Terry N. Champion
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Chief Coroner, Province of British Columbia

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ABBREVIATIONS

AATA	-	Administrator, Air Transportation Administration
AIAC	-	Air Industries Association of Canada
AOG	-	Aircraft Operations Group
ASA	-	Aviation Safety Analysis
ASB	-	Aviation Safety Bureau
ASE	-	Aviation Safety Engineering
ASI	-	Aviation Safety Investigation
ASP	-	Aviation Safety Promotion
ASRS	-	Aviation Safety Reporting System
ATAC	-	Air Transport Association of Canada
ATC	-	Air Traffic Control
CALFAA	-	Canadian Air Line Flight Attendants' Association
CALPA	-	Canadian Air Line Pilots Association
CATA	-	Canadian Air Transportation Administration
CATCA	-	Canadian Air Traffic Control Association, Inc.
COPA	-	Canadian Owners and Pilots Association
CPO	-	Contingency Plans & Operations
CTC	-	Canadian Transport Commission
CUPTE	-	Canadian Union of Professional and Technical Employees
CVR	-	Cockpit Voice Recorder
DDG	-	Deputy Director-General
DOT	-	Department of Transport
ETA	-	Estimated Time of Arrival
FAA	-	Federal Aviation Administration

IATA	-	International Air Transport Association
ICAO	-	International Civil Aviation Organization
MANOPS	-	Air Traffic Control Manual of Operations
MOT	-	Minister of Transport
NASA	-	National Aeronautics & Space Administration
NTSB	-	National Transportation Safety Board
Px	-	Position Report
RCMP	-	Royal Canadian Mounted Police